



MASSACHUSETTS DEPARTMENT OF
CONSERVATION AND RECREATION

Centre Street Corridor Study



DCR Public Meeting

Wednesday, October 7, 2015 - 6:30 p.m. – 8:00 p.m.
Arnold Arboretum Visitor Center, 125 Arborway, Boston 02130



Commonwealth of Massachusetts

Governor

Charles D. Baker

Lieutenant Governor

Karyn E. Polito

Energy and Environmental Secretary

Matthew A. Beaton

Department of Conservation and Recreation Commissioner

Carol I. Sanchez



DCR Mission Statement

To protect, promote and enhance our common wealth of natural, cultural and recreational resources for the well-being of all.



Meeting Purpose

- *Present the results of a traffic study to consider improvements to pedestrian, bicycle and vehicle safety and accommodation along Centre Street.*
- *Obtain input from the public*



Project Support

- *The Emerald Necklace Conservancy*
- *Representative Jeffery Sánchez*
- *Senator Sonia Chang-Diaz*
- *Senator Michael Rush*
- *Representative Elizabeth Malia*






Study Consultant

- *BETA Group, Inc.*
 - *30 years as a leading multidisciplinary firm*
 - *Established Transportation Engineering Expertise*

Project Area



LEGEND

-  Existing Traffic Signal
-  Existing Pedestrian Crossing Signal
-  Existing MBTA Bus Stop

Corridor History

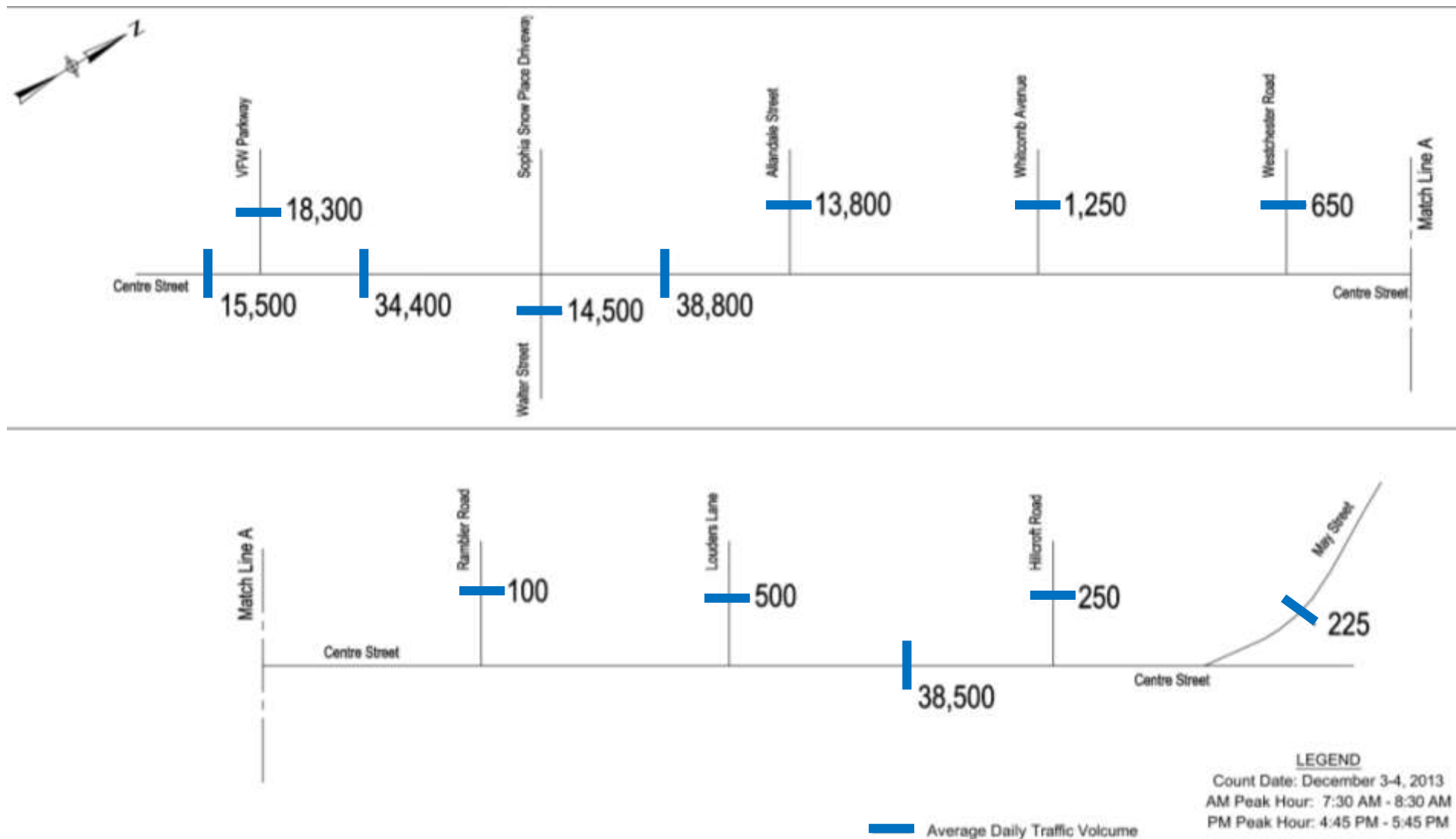
- Centre Street is owned by the City of Boston.
- Care, control and maintenance of Centre Street was transferred to the M.D.C. (now DCR) by act of the legislature in the 1950's.
- DCR's limit of jurisdiction, as defined in the legislation, is "from back of side walk to back of side walk".
- Centre Street was formerly designated as US Route 1. The designation was removed in the late 1980's, but Centre Street's role in the regional roadway system has not changed.

Project Scope

- Collect data
 - Traffic volumes
 - Daily (vehicles)
 - Peak hour (pedestrians, bicycles, vehicles)
 - Crash data
- Evaluate existing conditions
- Identify deficiencies
- Prepare conceptual improvements

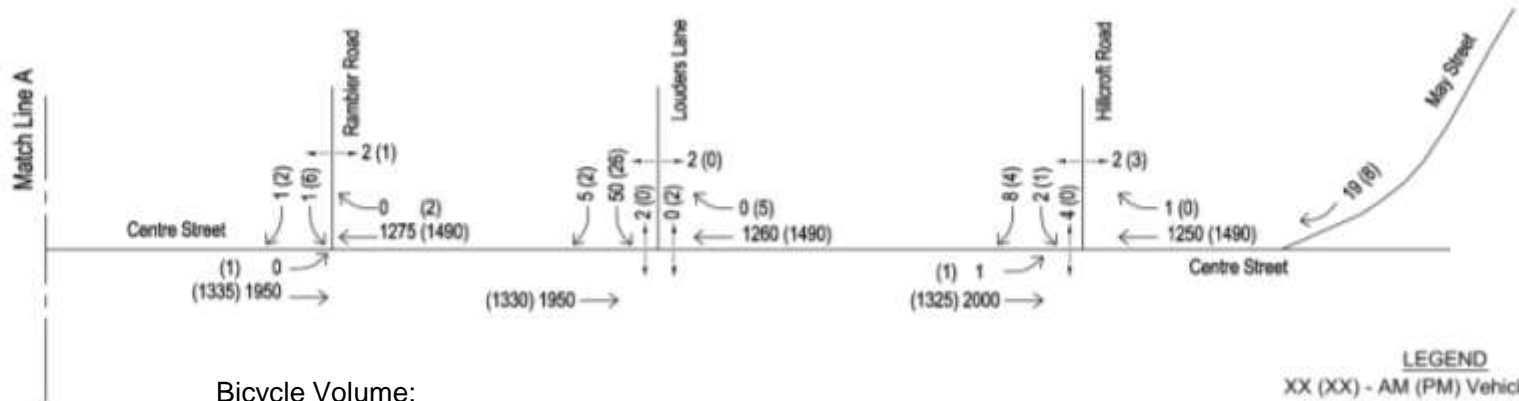
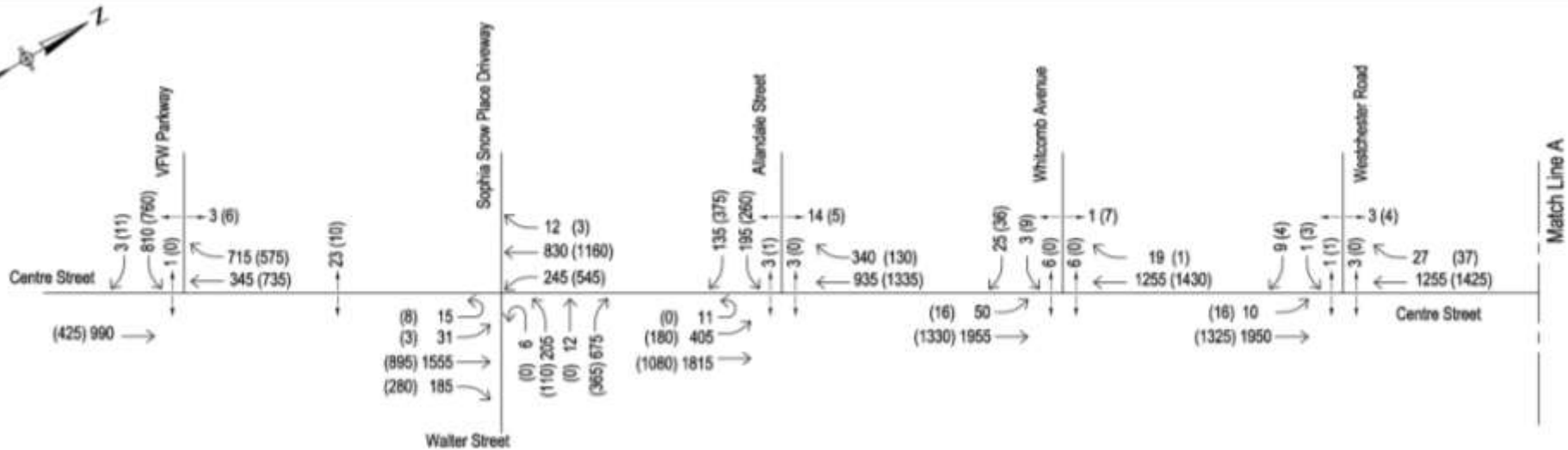
Traffic Volume

(Daily total vehicle volume)



* Data Collected Prior to Casey Overpass Construction.

Traffic Volume (Peak Hour)



Bicycle Volume:

Northbound: 25 (5)

Southbound: 0 (20)

XX (XX) → = AM (PM) Vehicle Volume
XX (XX) ← = AM (PM) Pedestrian Volume

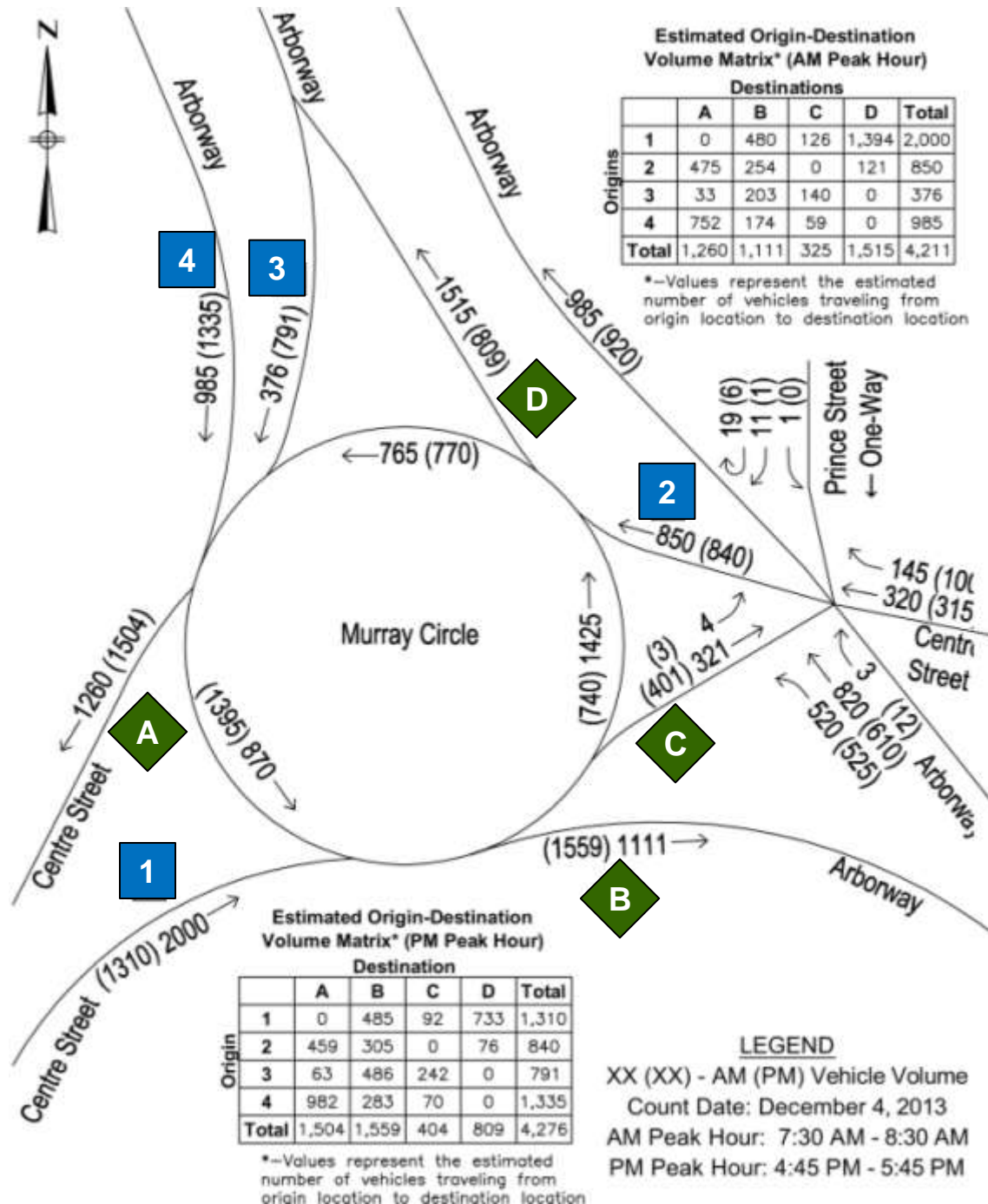
LEGEND

XX (XX) - AM (PM) Vehicle Volume
Count Date: December 4, 2013
AM Peak Hour: 7:30 AM - 8:30 AM
PM Peak Hour: 4:45 PM - 5:45 PM

* Data Collected Prior to Casey Overpass Construction.

Traffic Volume

(Peak Hour)



Crash Data (2009–2013)

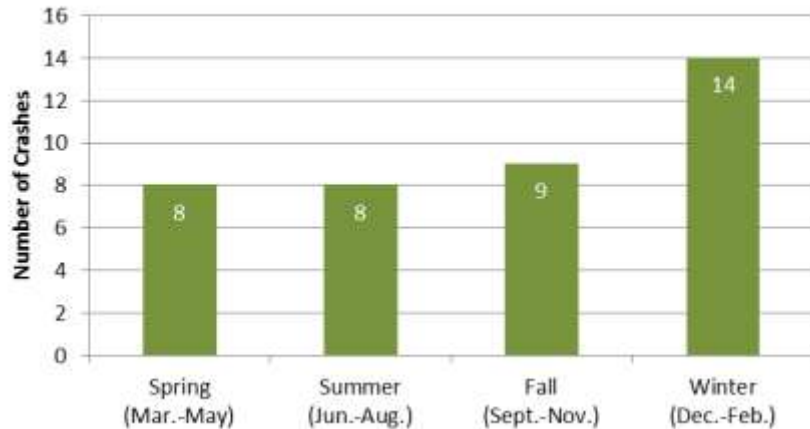
Intersection Centre Street @:	Number of Reported Crashes	Crash Rate*
VFW Parkway	11	0.18
Walter Street	39	0.47
Allandale Street	20	0.24
Mid-block Crosswalk	6	0.09
Whitcomb Avenue	7	0.10
Westchester Road	4	0.06
Rambler Road	2	0.03
Louders Lane	17	0.24
Hillcroft Road	10	0.14
Murray Circle	64	0.61

* Crashes per Million Vehicles Entering Intersection

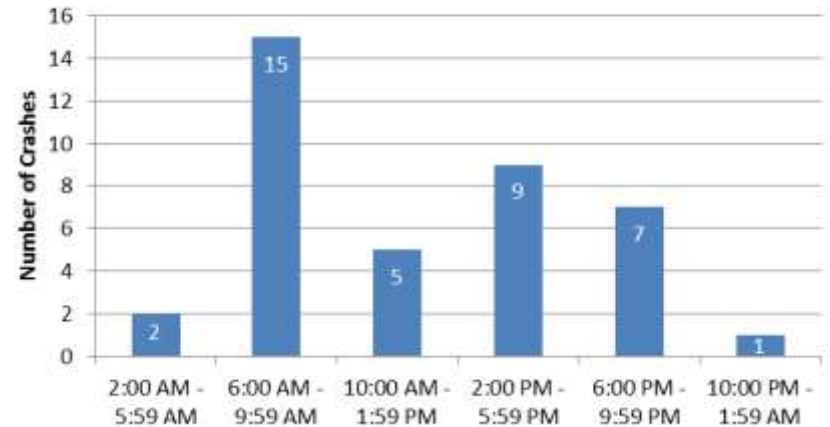
Crash Data (2009–2013)

- Walter Street** (39 Crashes)

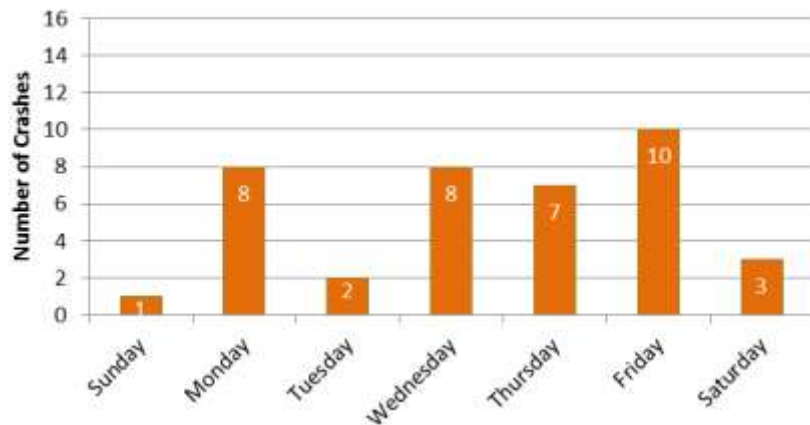
Number of Crashes by Season



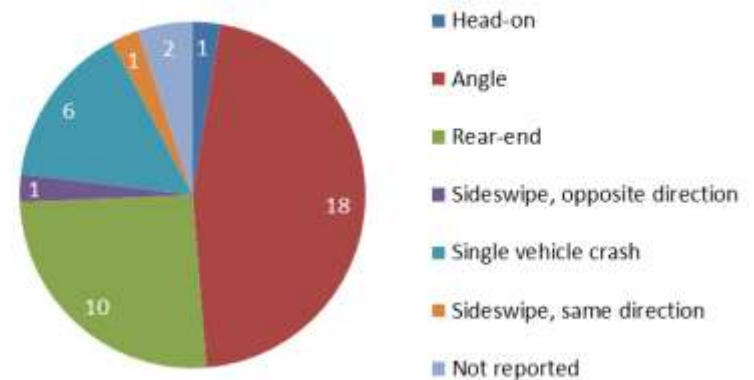
Number of Crashes by Time of Day



Number of Crashes by Day of Week



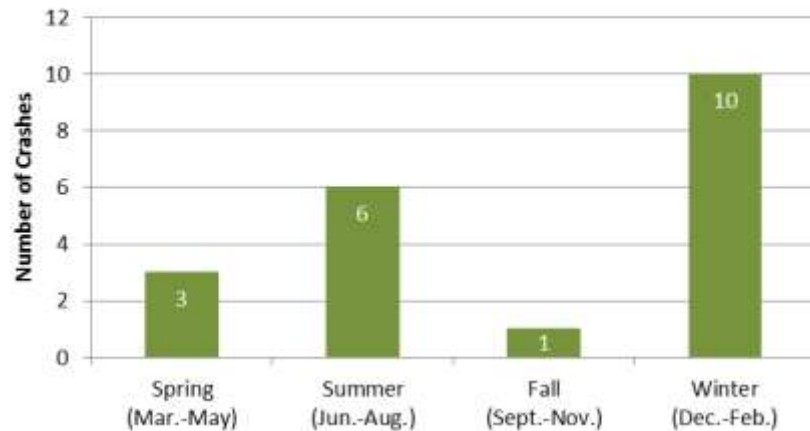
Manner of Collision



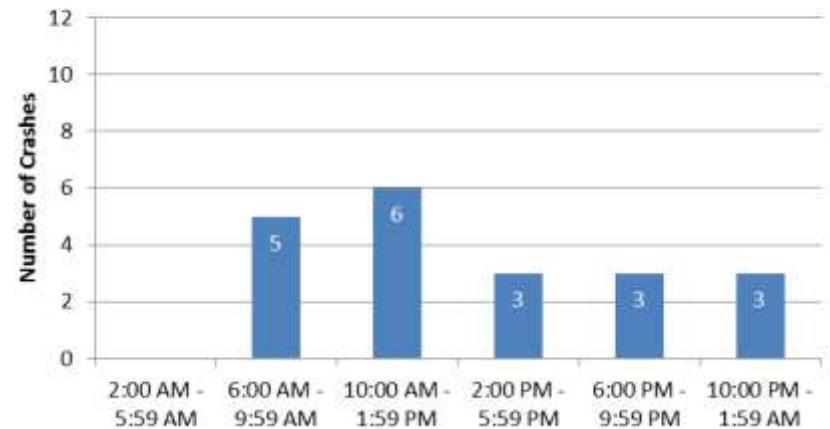
Crash Data (2009–2013)

- Allandale Street** (20 Crashes)

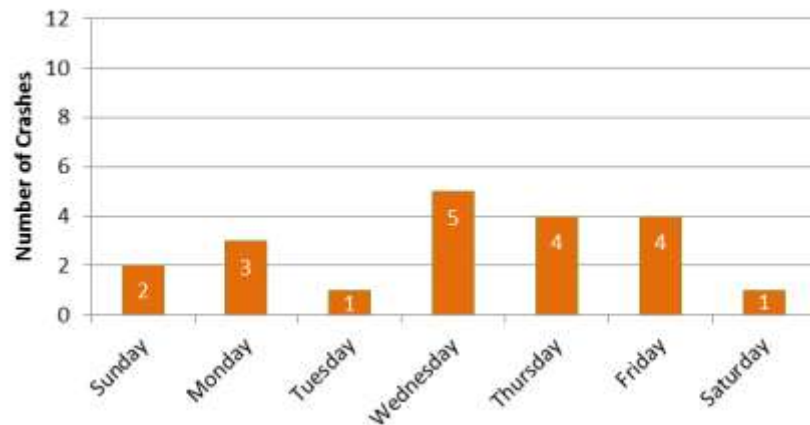
Number of Crashes by Season



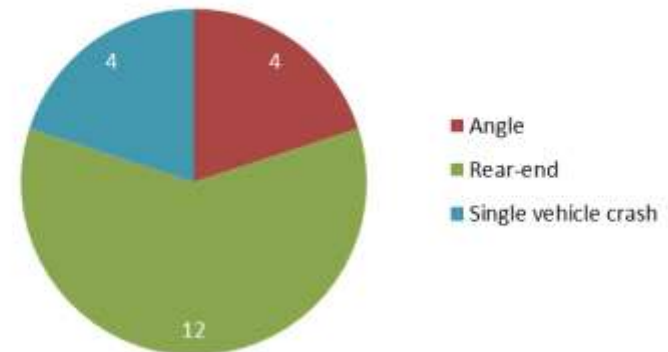
Number of Crashes by Time of Day



Number of Crashes by Day of Week



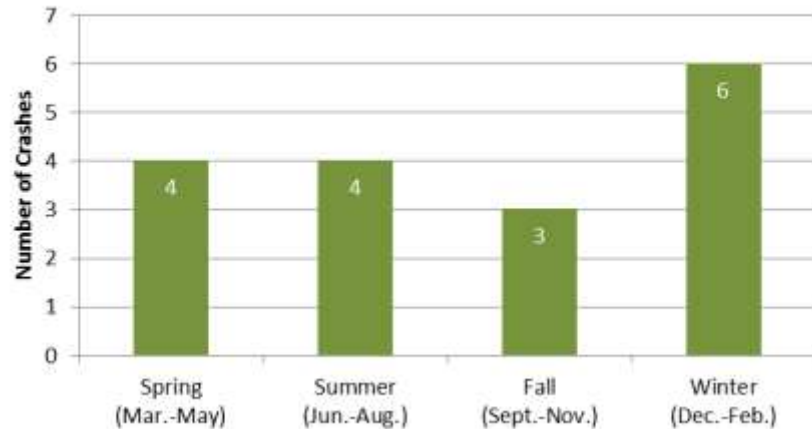
Manner of Collision



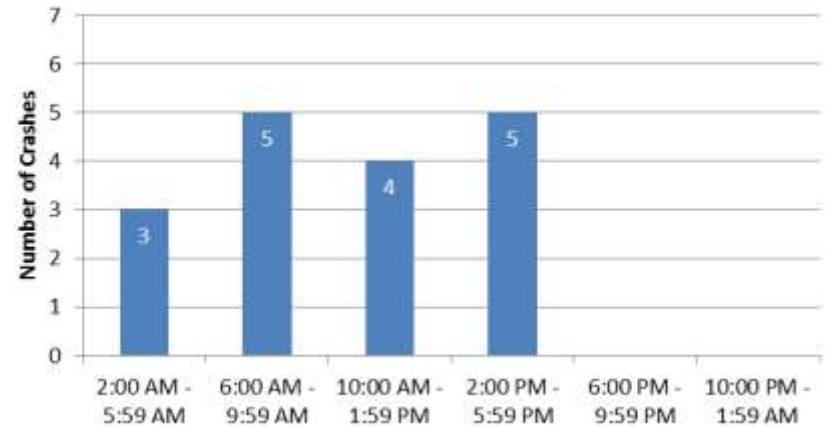
Crash Data (2009–2013)

- Louders Lane** (17 Crashes)

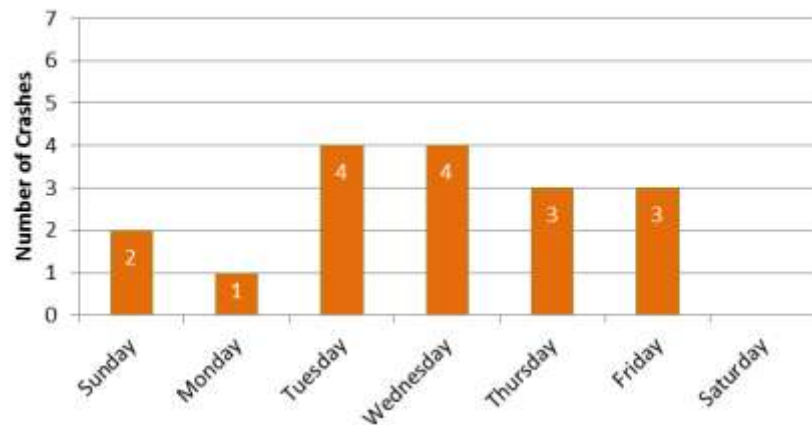
Number of Crashes by Season



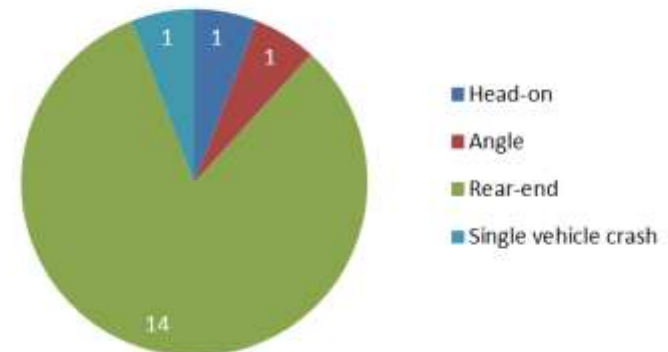
Number of Crashes by Time Period



Number of Crashes by Day of Week



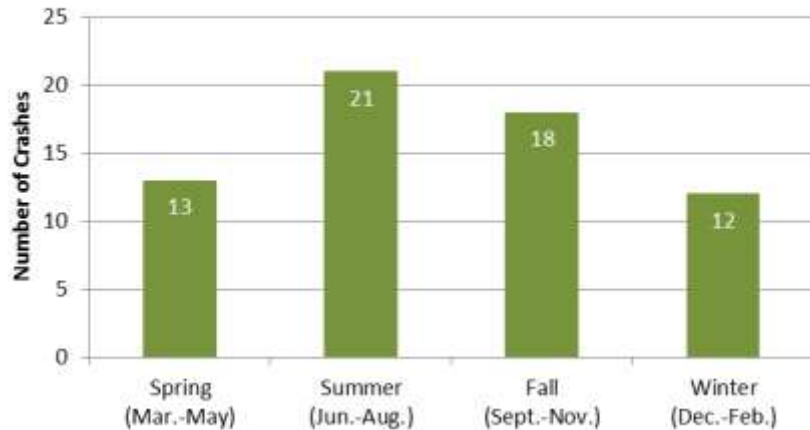
Manner of Collision



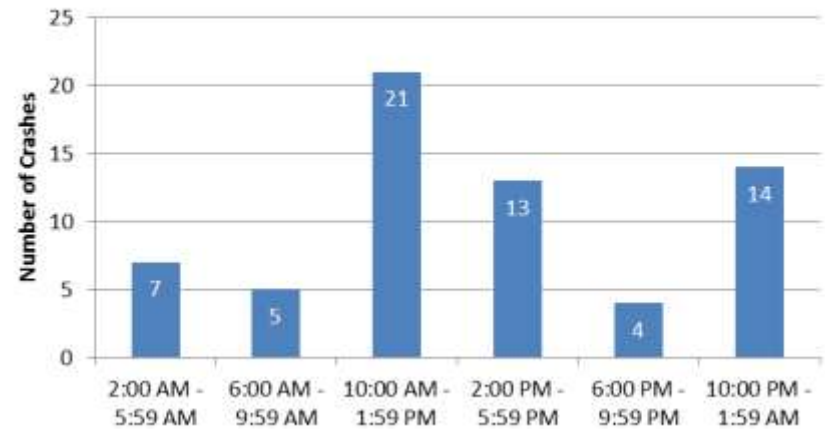
Crash Data (2009–2013)

- Murray Circle** (64 Crashes)

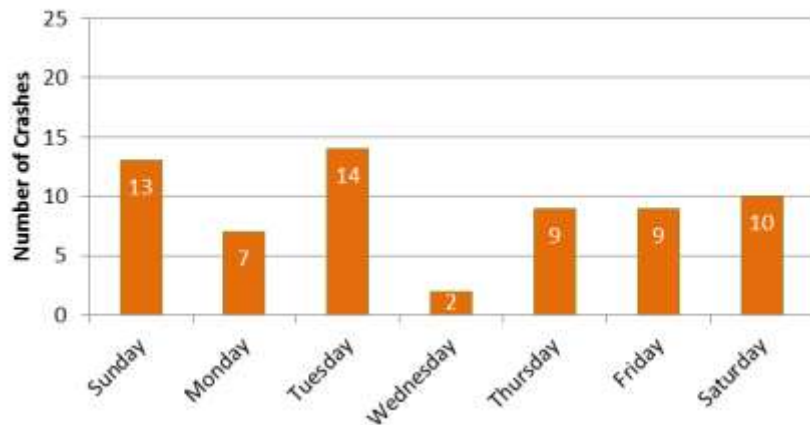
Number of Crashes by Season



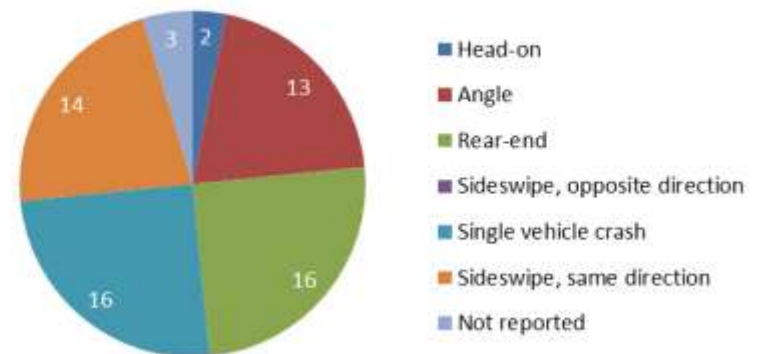
Number of Crashes by Time of Day



Number of Crashes by Day of Week



Manner of Collision



Existing Conditions

Sidewalks & Crosswalks

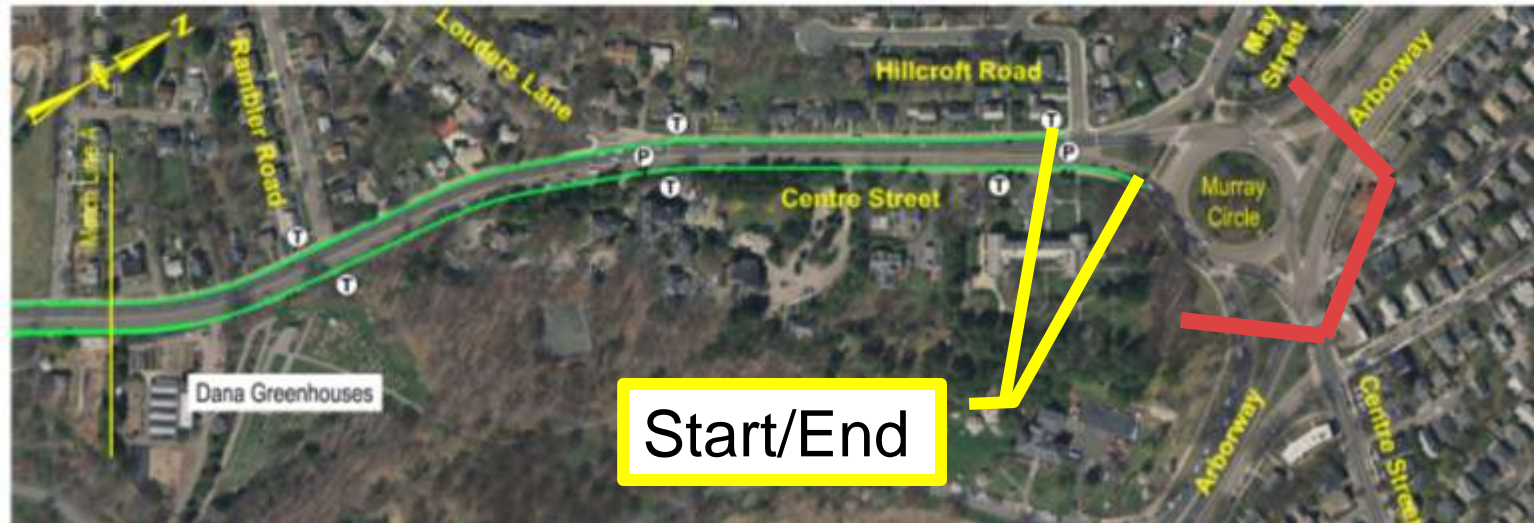


LEGEND

-  Existing Traffic Signal
-  Existing Pedestrian Crossing Signal
-  Existing MBTA Bus Stop
-  Existing Sidewalks & Crosswalks

Existing Conditions

Bicycle Lanes



LEGEND

-  Existing Traffic Signal
-  Existing Pedestrian Crossing Signal
-  Existing MBTA Bus Stop
-  Existing Bicycle Lanes

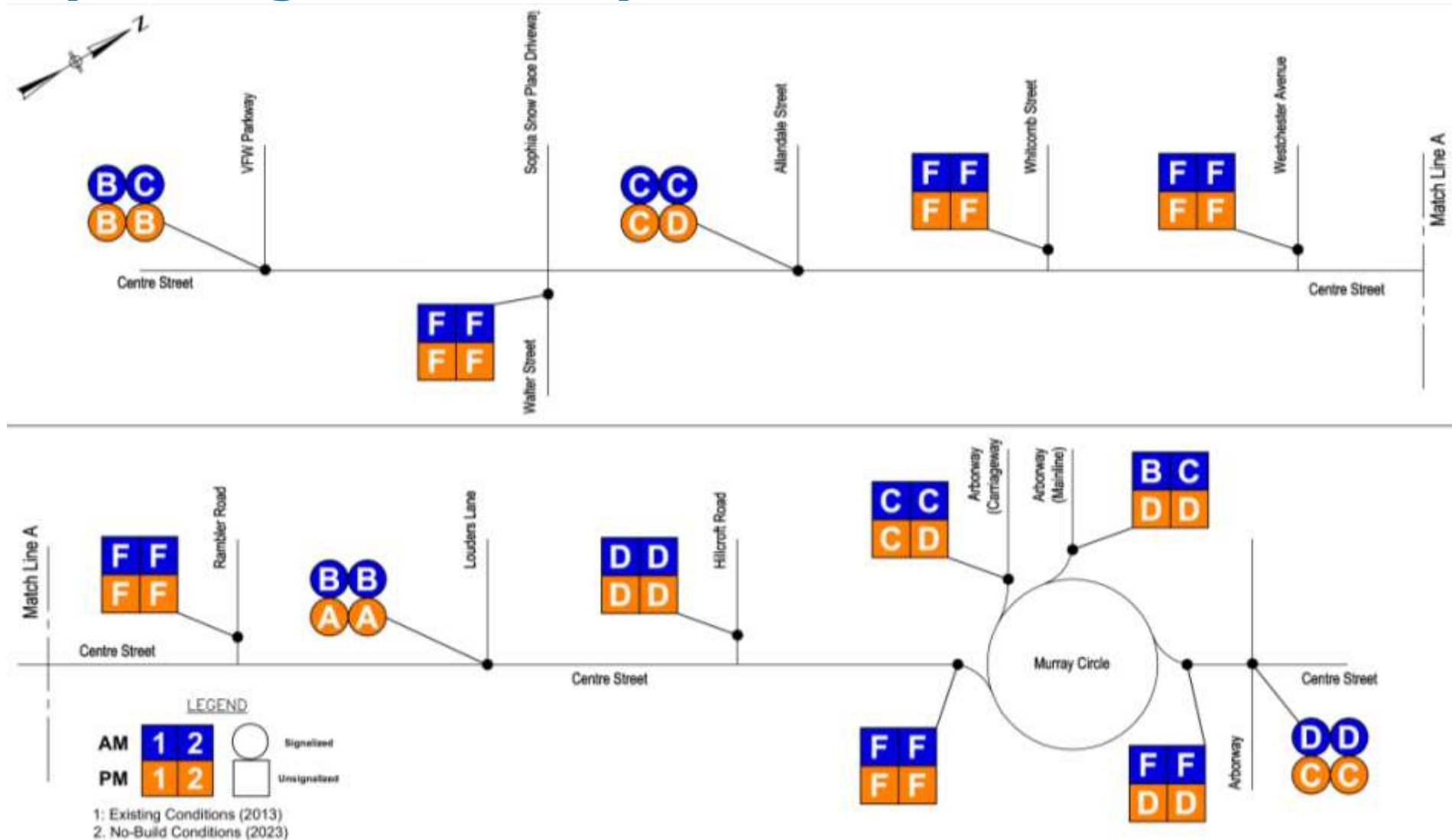
Existing Conditions

Vehicle Level of Service (LOS) Criteria

LOS	Signalized Intersections (Average Seconds of Delay/Vehicle)	Unsignalized Intersections (Average Seconds of Delay/Vehicle)
A	< 10.0	< 10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.0 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	> 80.0	> 50.0

Vehicle LOS Analysis Results

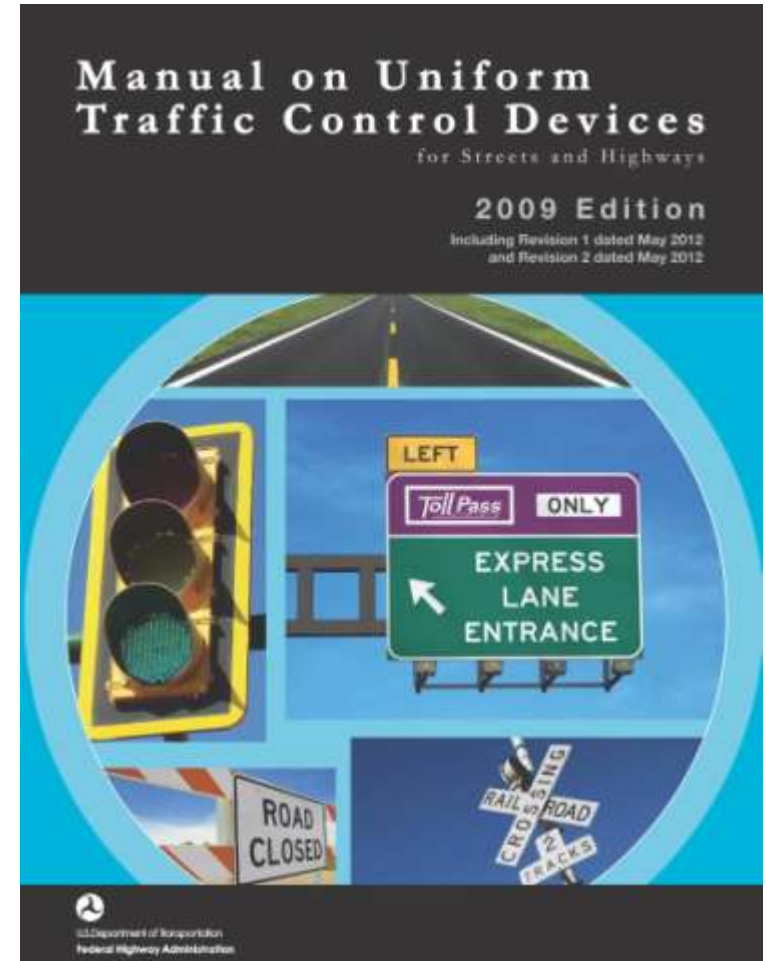
(Existing & No-Build)



Results represent intersection operations during the morning and afternoon rush hours (approximately 2 hours each). Times outside of the rush periods generally operate with better LOS.

Traffic Signal Warrants

- **MUTCD**
 - Federal Regulation
 - The national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel



Traffic Signal Warrants

Warrants:

- 1) Eight-Hour Vehicular Volume
- 2) Four-Hour Vehicular Volume
- 3) Peak Hour
- 4) Pedestrian Volume
- 5) School Crossing
- 6) Coordinated Signal System
- 7) Crash Experience
- 8) Roadway Network
- 9) Intersection Near a Grade Crossing

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation (or continued operation) of a traffic control signal.

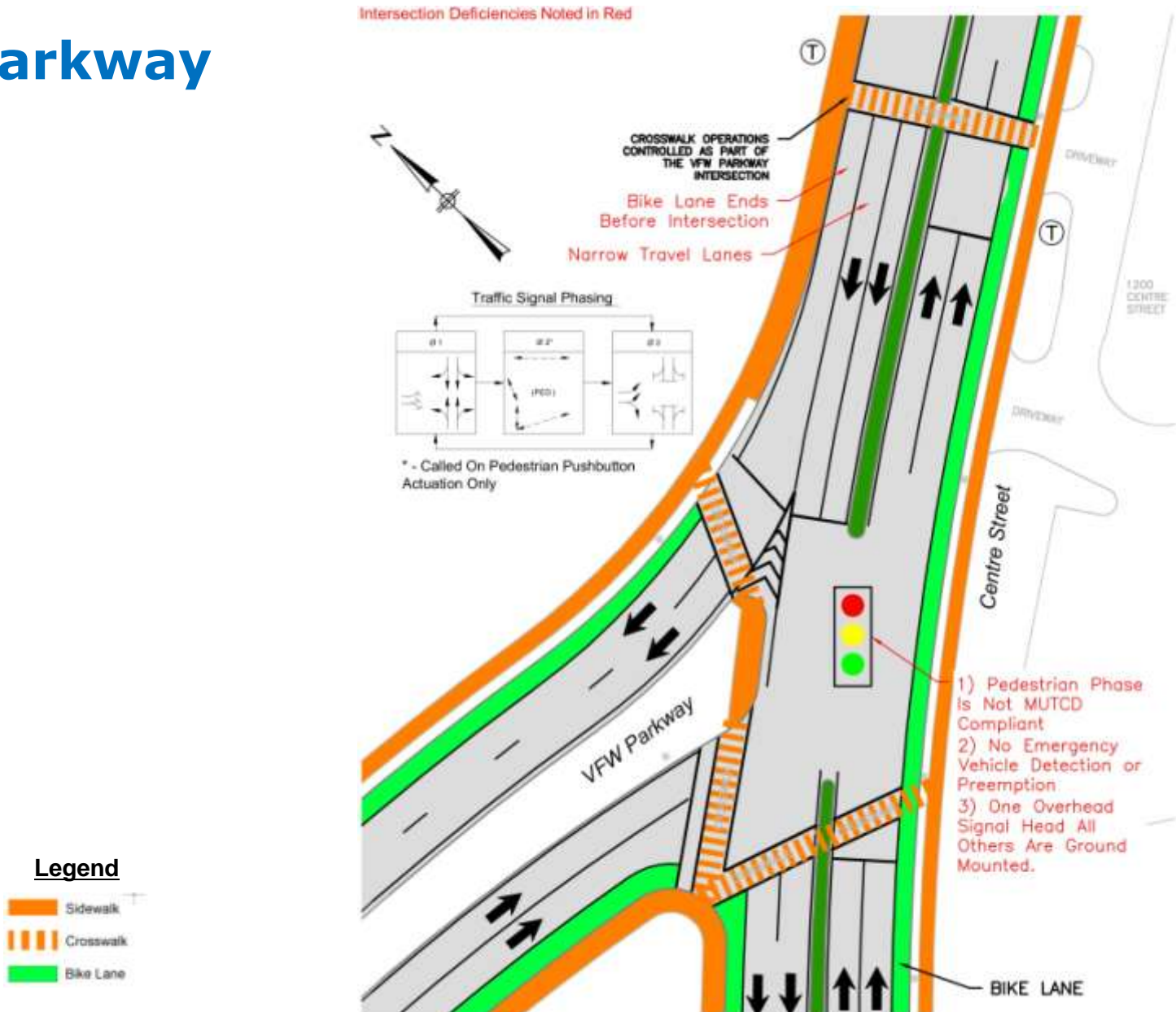
Traffic Signal Warrants

Location: Centre Street at:	Existing Intersection Control*	Warrant 1 8-Hour Volume	Warrant 2 4-Hour Volume	Warrant 3 1-Hour Volume	Warrant 4 Pedestrian Volume	Is a Traffic Signal Warranted?	Continue Existing or Install New Traffic Signal?
VFW Parkway	S	Yes	Yes	Yes	No	YES	Continue Existing
Walter Street	U	Yes	Yes	Yes	No	YES	Install New
Allandale Street	S	Yes	Yes	Yes	No	YES	Continue Existing
Mid-block Pedestrian Crossing (at Hospital)	P	N/A	N/A	N/A	No	NO	Continue Existing
Whitcomb Avenue	U	No	No	No	No	NO	No Signal
Westchester Road	U	No	No	No	No	NO	No Signal
Rambler Road	U	No	No	No	No	NO	No Signal
Louders Lane	P	No	No	No	No	NO	Continue Existing
Hillcroft Road	P	No	No	No	No	NO	Continue Existing

* Existing Intersection Control:
 S = Traffic Signal Control
 P = Pedestrian Signal Control
 U = Unsignalized (STOP Sign Control)

Existing Intersection Deficiencies

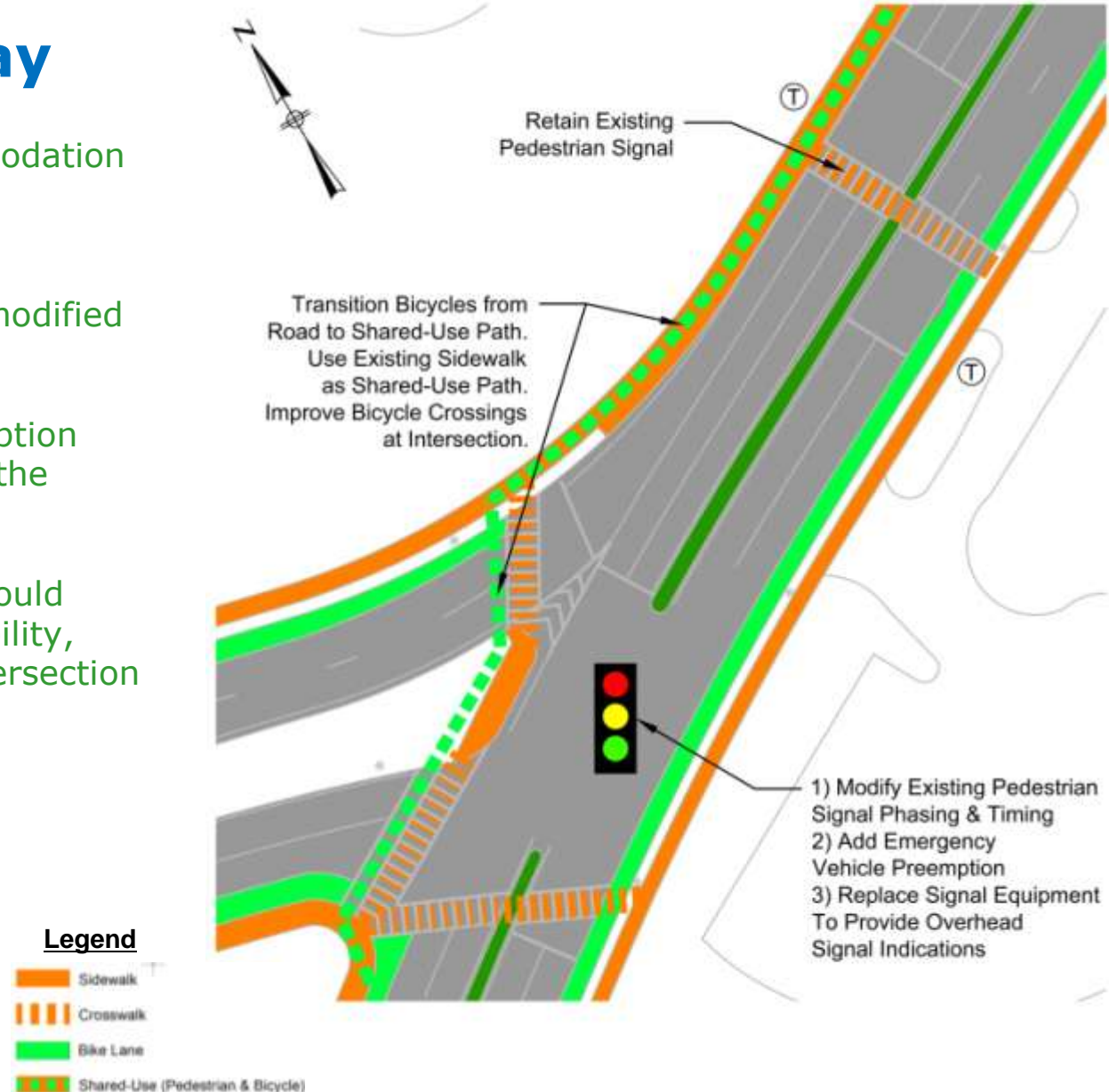
- VFW Parkway



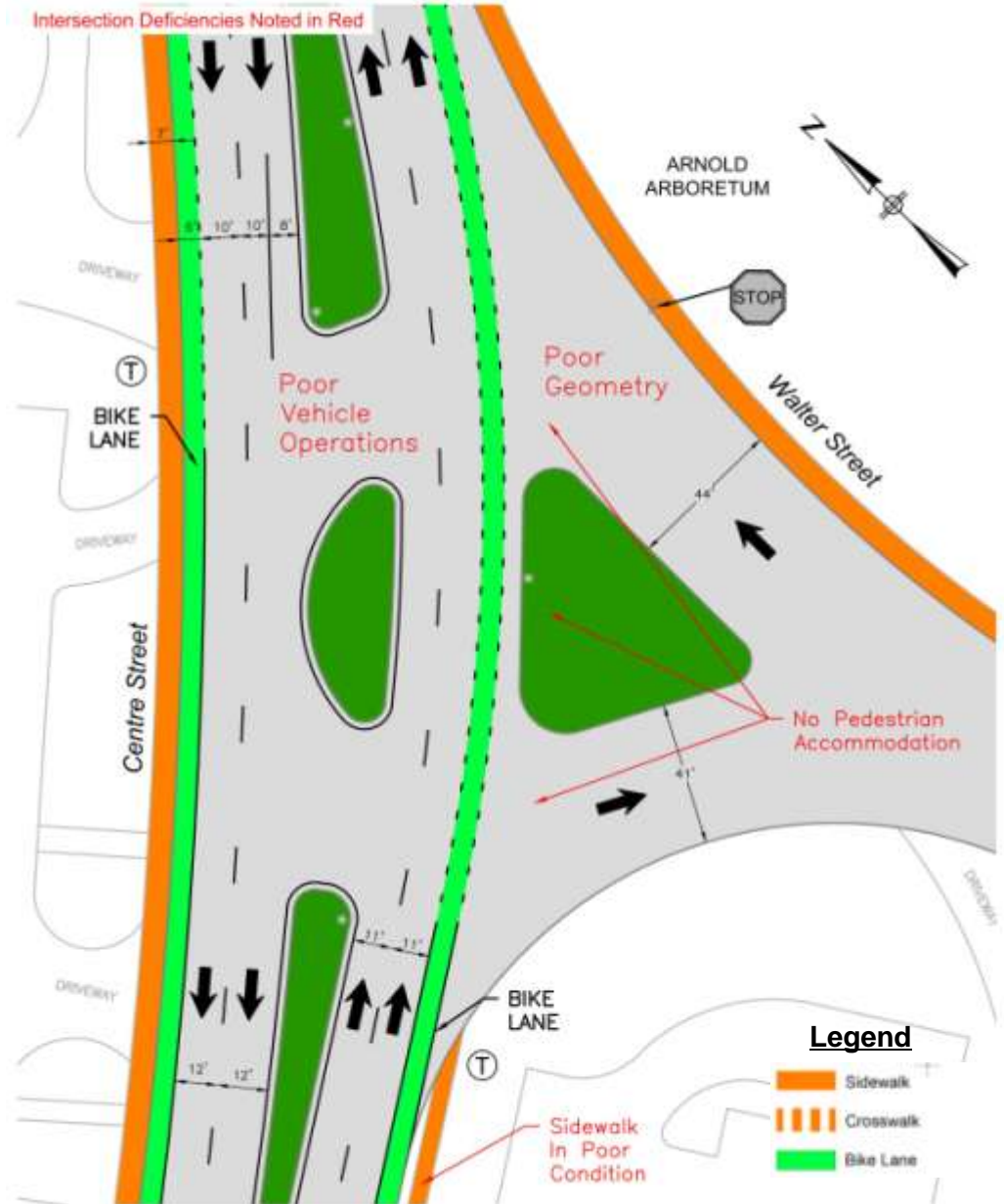
Intersection Improvement Concept

• VFW Parkway

- Improved Bicycle Accommodation Via Shared-Use Path.
- Improved Pedestrian Accommodation through modified Signal Timing.
- Emergency Vehicle Preemption Would Improve Access to the Hospital.
- Overhead Signal Heads Would Improve Signal Head Visibility, Which Would Improve Intersection Safety.

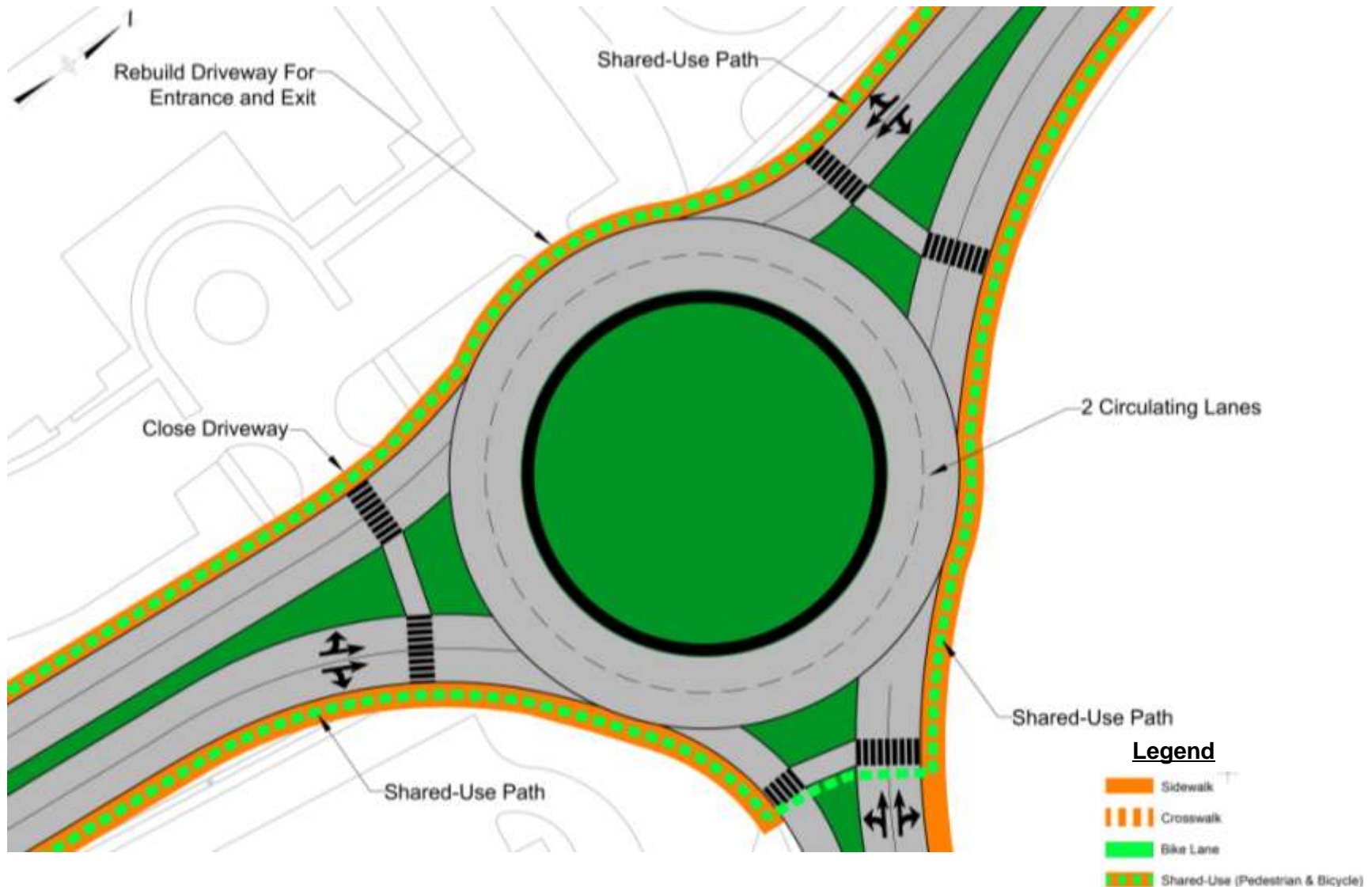


- **Walter Street**



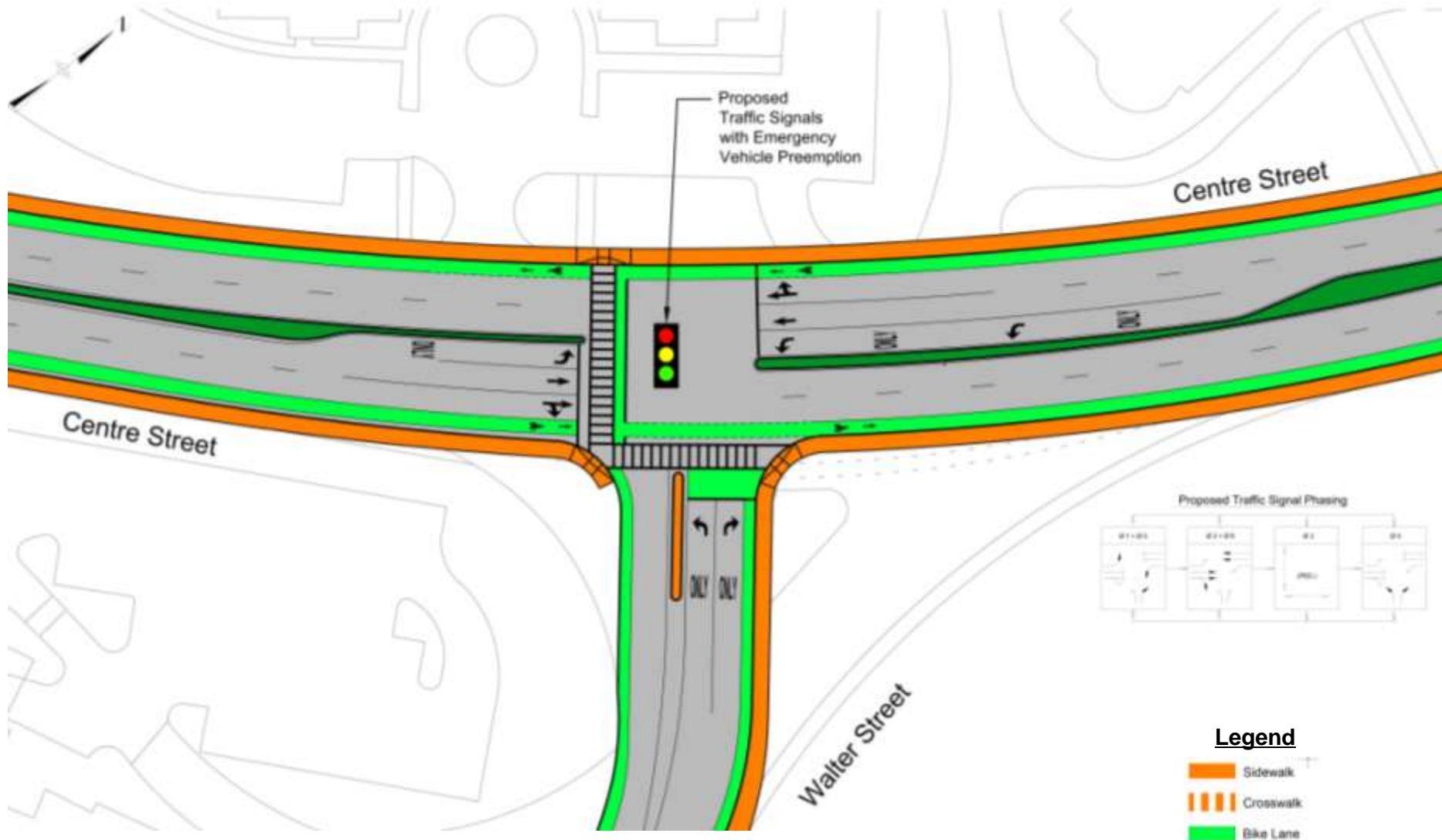
Walter Street

- Roundabout Concept



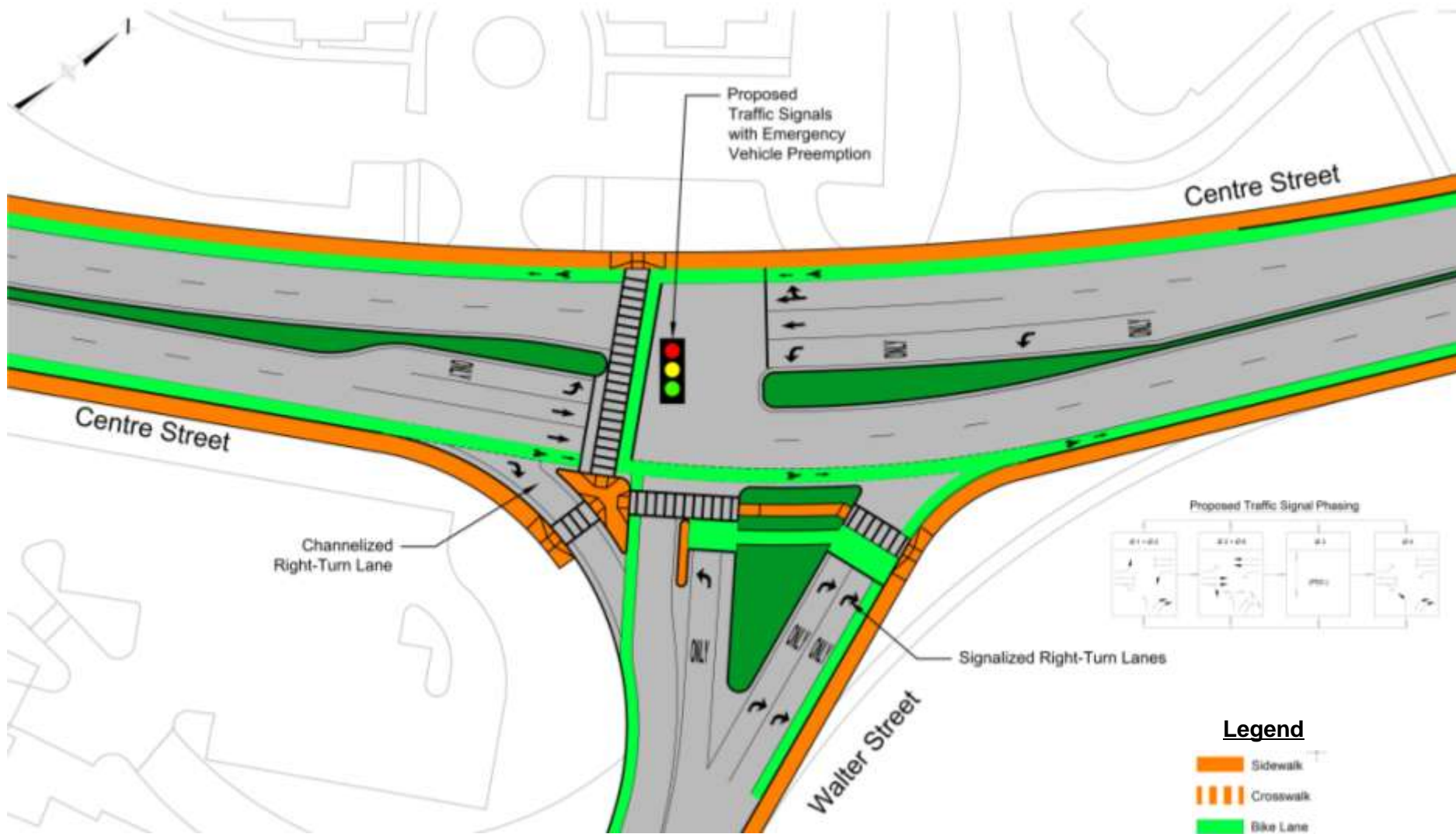
Walter Street

- Traffic Signal Concept 1



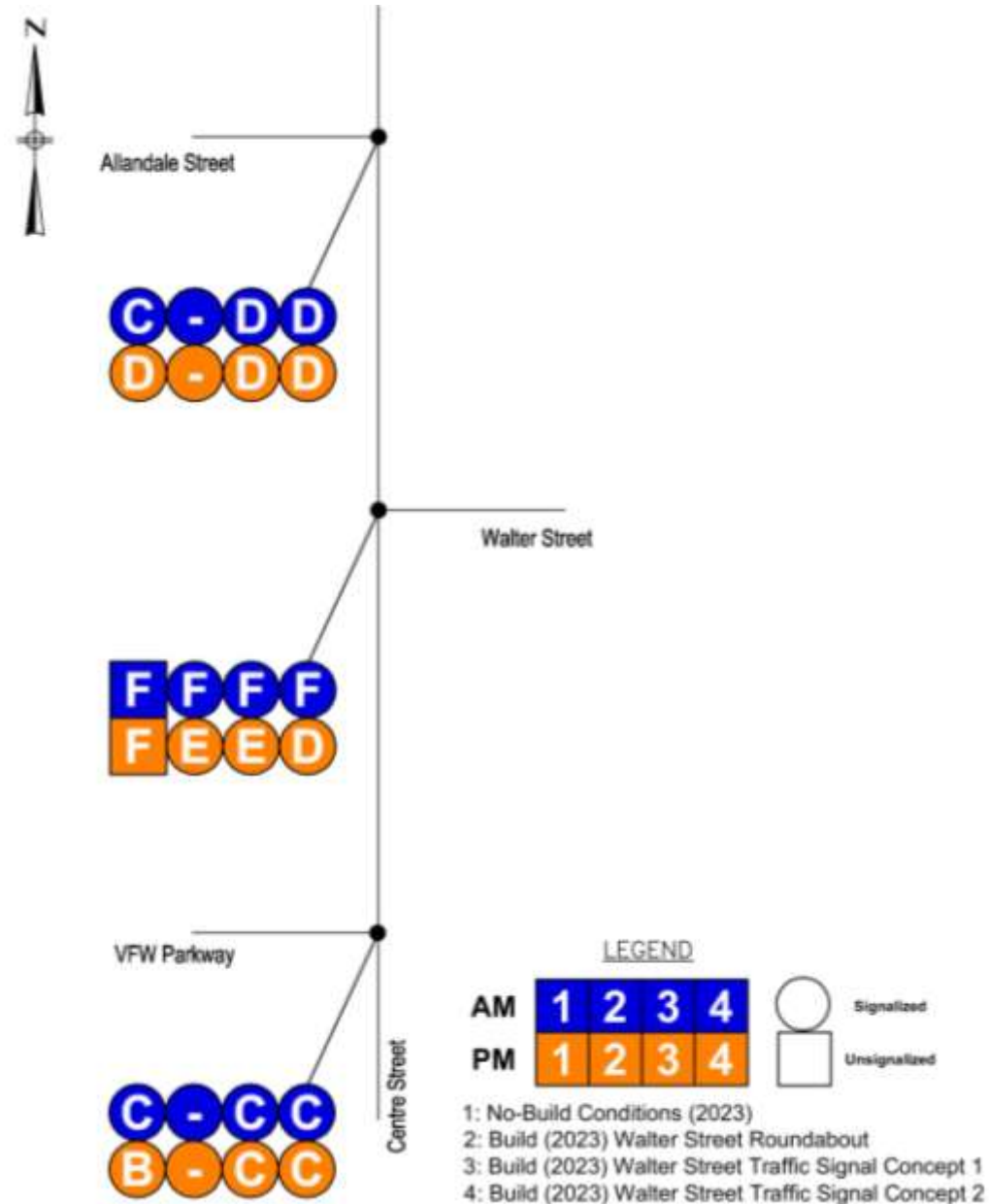
Walter Street

- **Traffic Signal Concept 2**



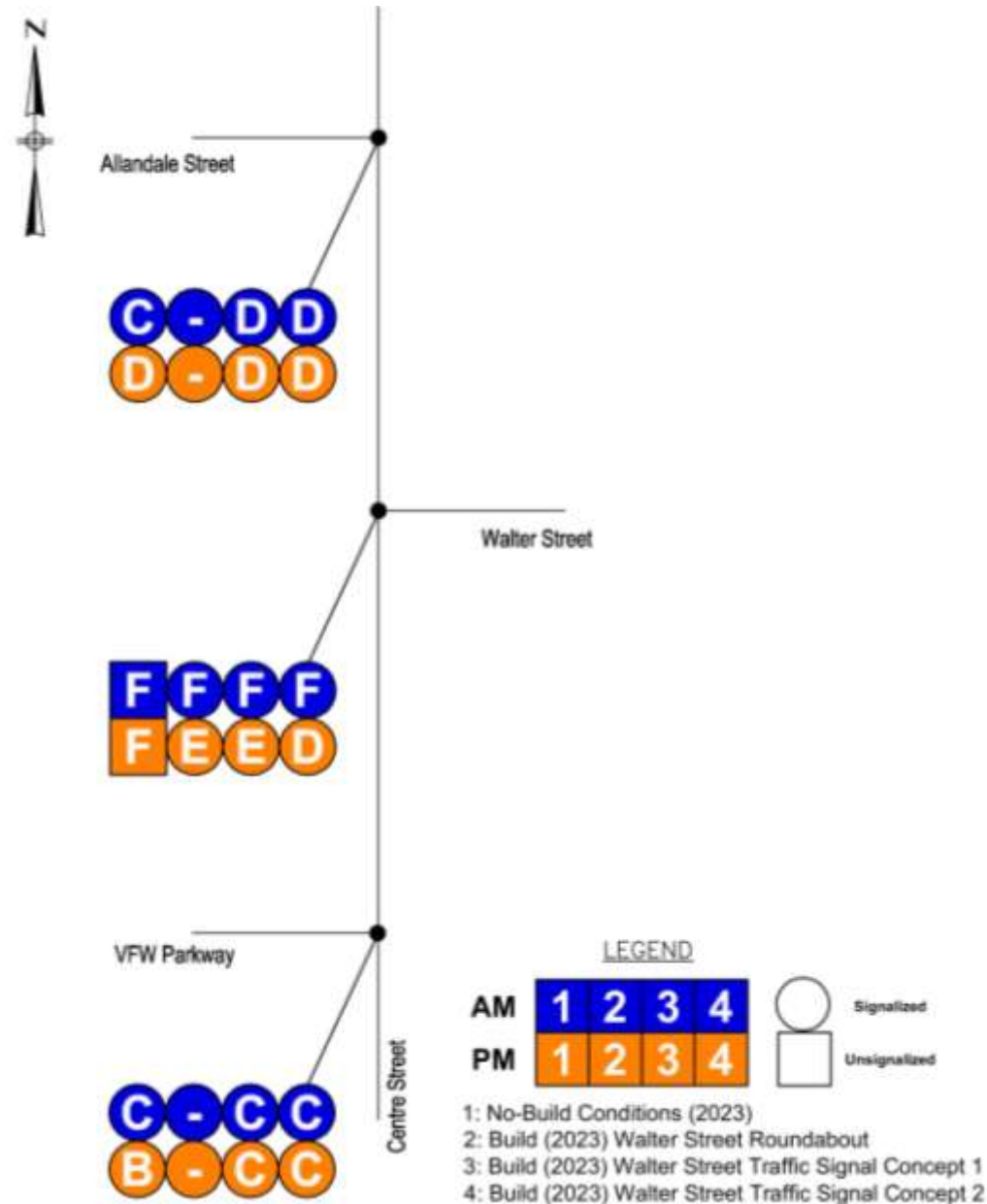
Improvement Concept Analysis Results

- Intersection Currently Operates at LOS F during AM and PM Peak Periods.
- Roundabout Concept:
 - Would not improve LOS (AM). Would actually increase vehicle queues.
 - Would not improve Bicycle Accommodation.
 - Would Improve Pedestrian Accommodation.
- Traffic Signal Concept 1:
 - Would not improve LOS (AM). Would increase some vehicle queues.
 - Would improve Bicycle Accommodation.
 - Would Improve Pedestrian Accommodation.



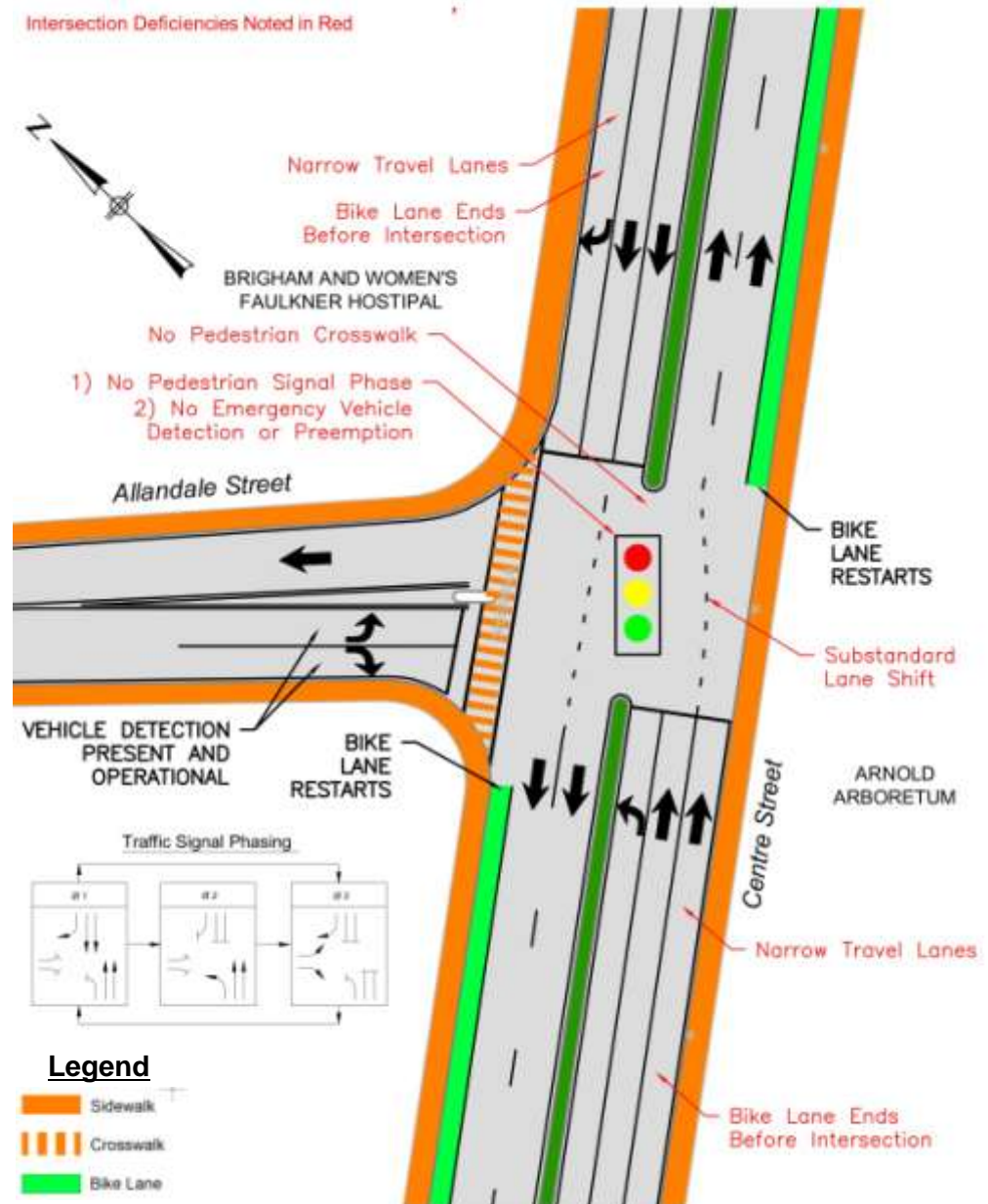
Improvement Concept Analysis Results

- Traffic Signal Concept 2:
 - Would not improve LOS (AM), but would provide a better LOS F than other Concepts.
 - Would Provide LOS D during afternoon peak period.
 - Would improve Bicycle Accommodation.
 - Would Improve Pedestrian Accommodation.



Existing Intersection Deficiencies

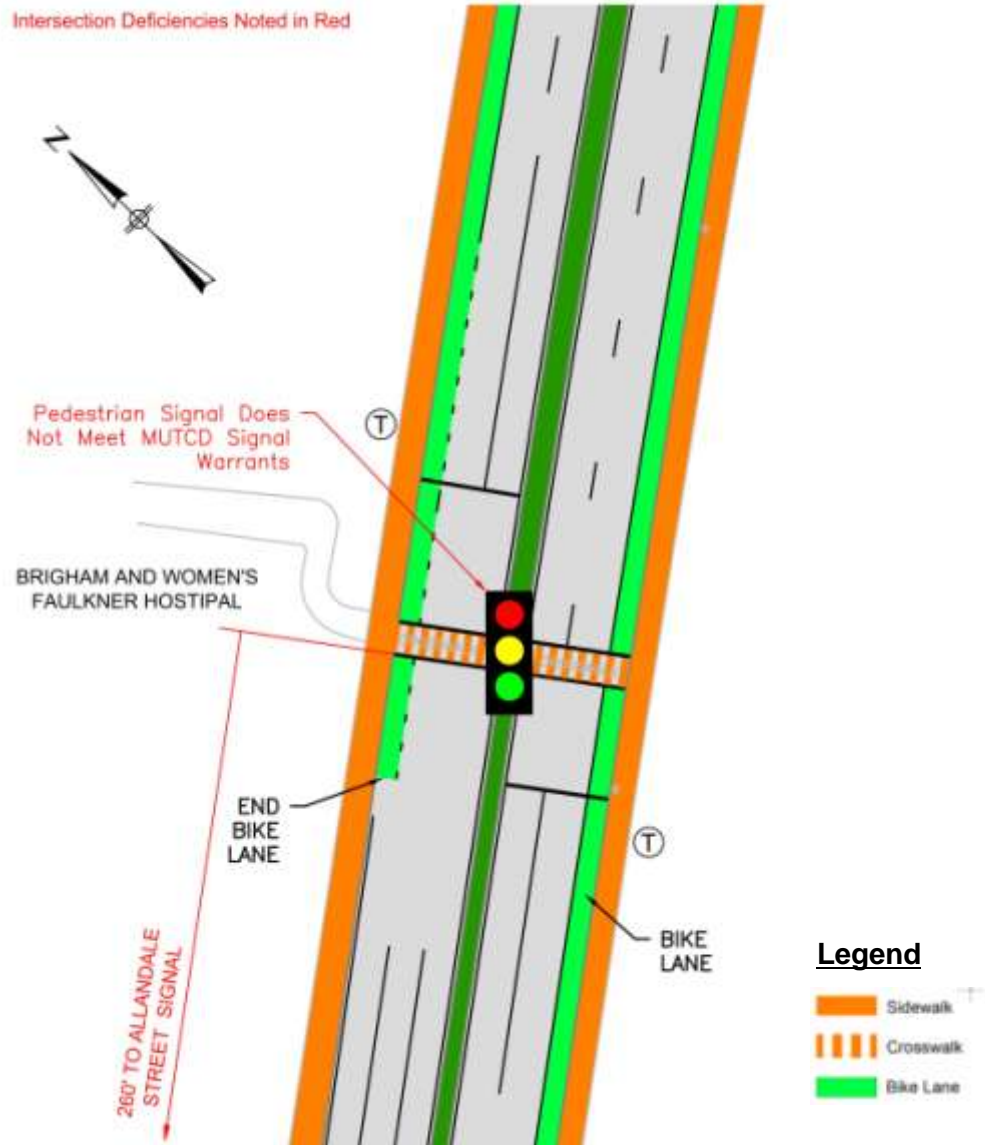
- Allandale Street



Existing Intersection Deficiencies

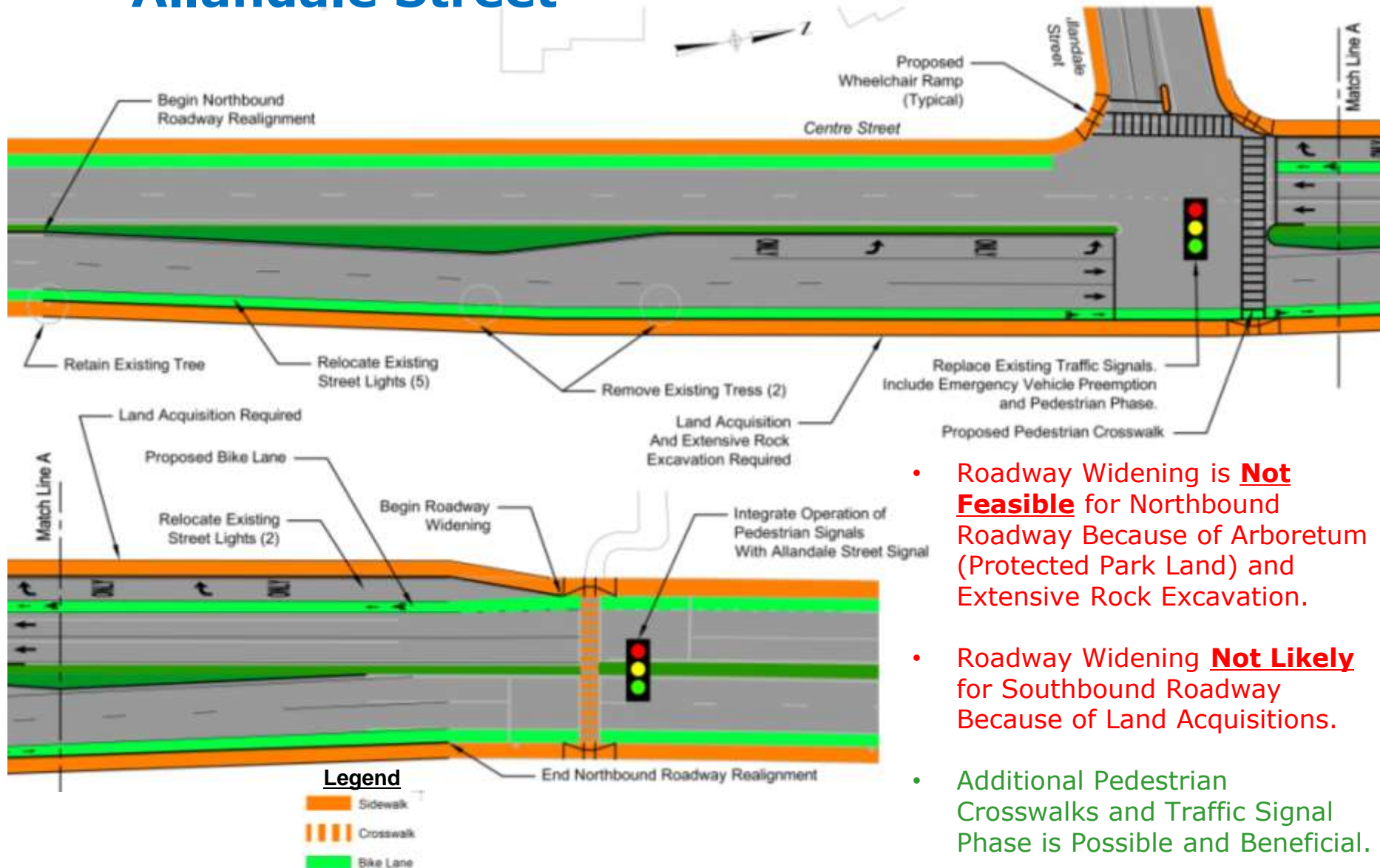
- Mid-Block Pedestrian Crossing

Intersection Deficiencies Noted in Red



Intersection Improvement Concept

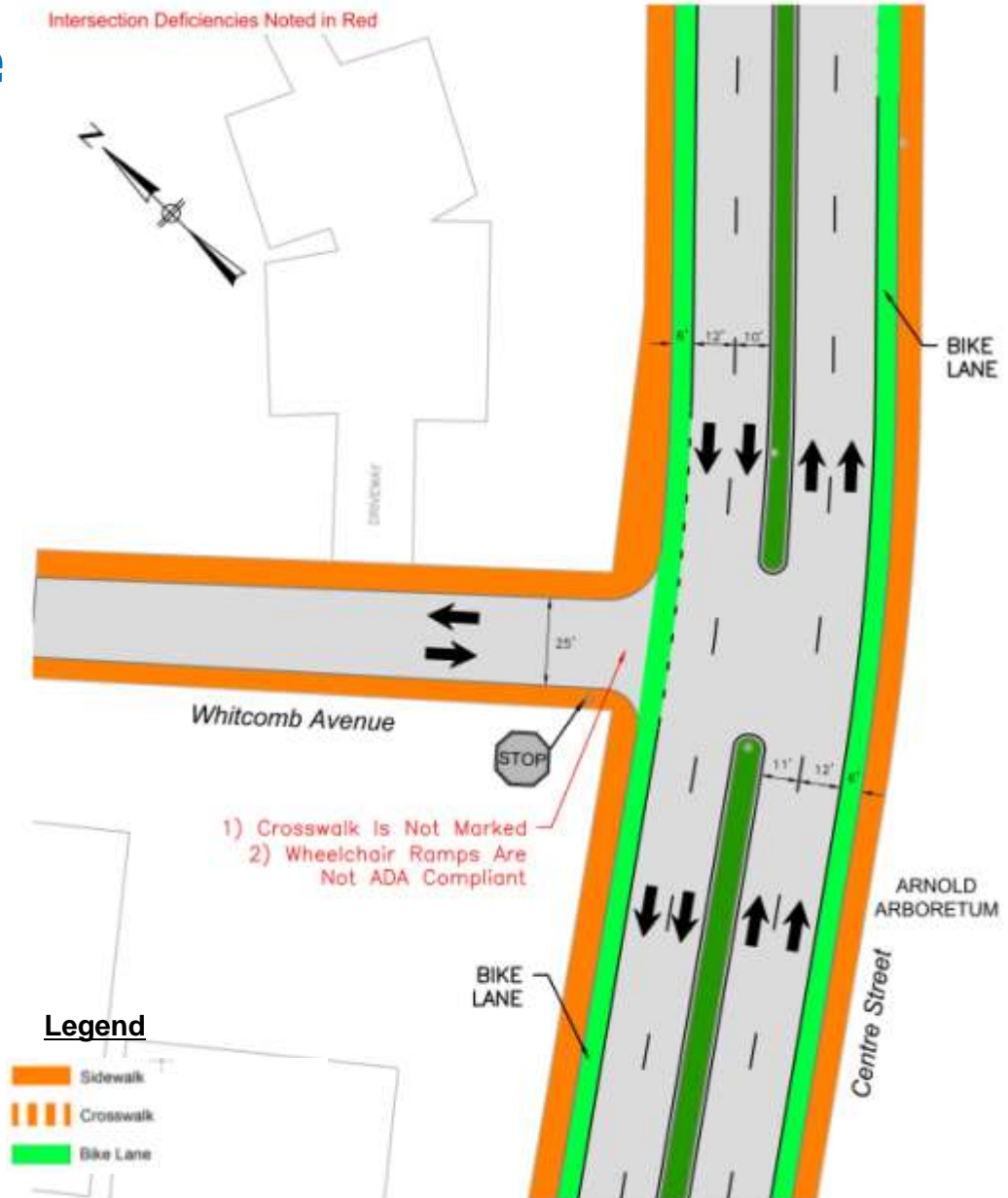
- Allandale Street



- Roadway Widening is **Not Feasible** for Northbound Roadway Because of Arboretum (Protected Park Land) and Extensive Rock Excavation.
- Roadway Widening **Not Likely** for Southbound Roadway Because of Land Acquisitions.
- Additional Pedestrian Crosswalks and Traffic Signal Phase is Possible and Beneficial.

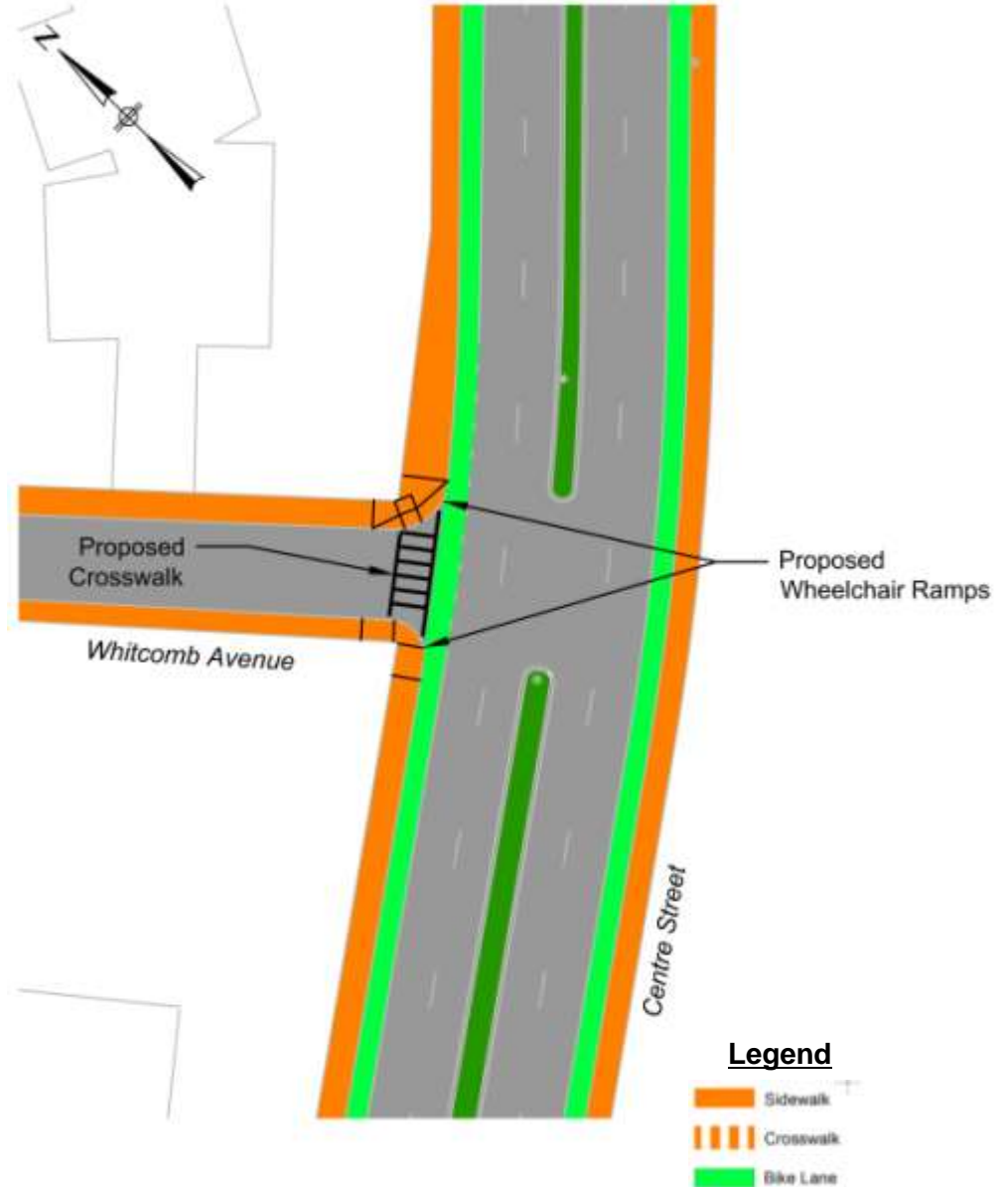
Existing Intersection Deficiencies

- Whitcomb Avenue



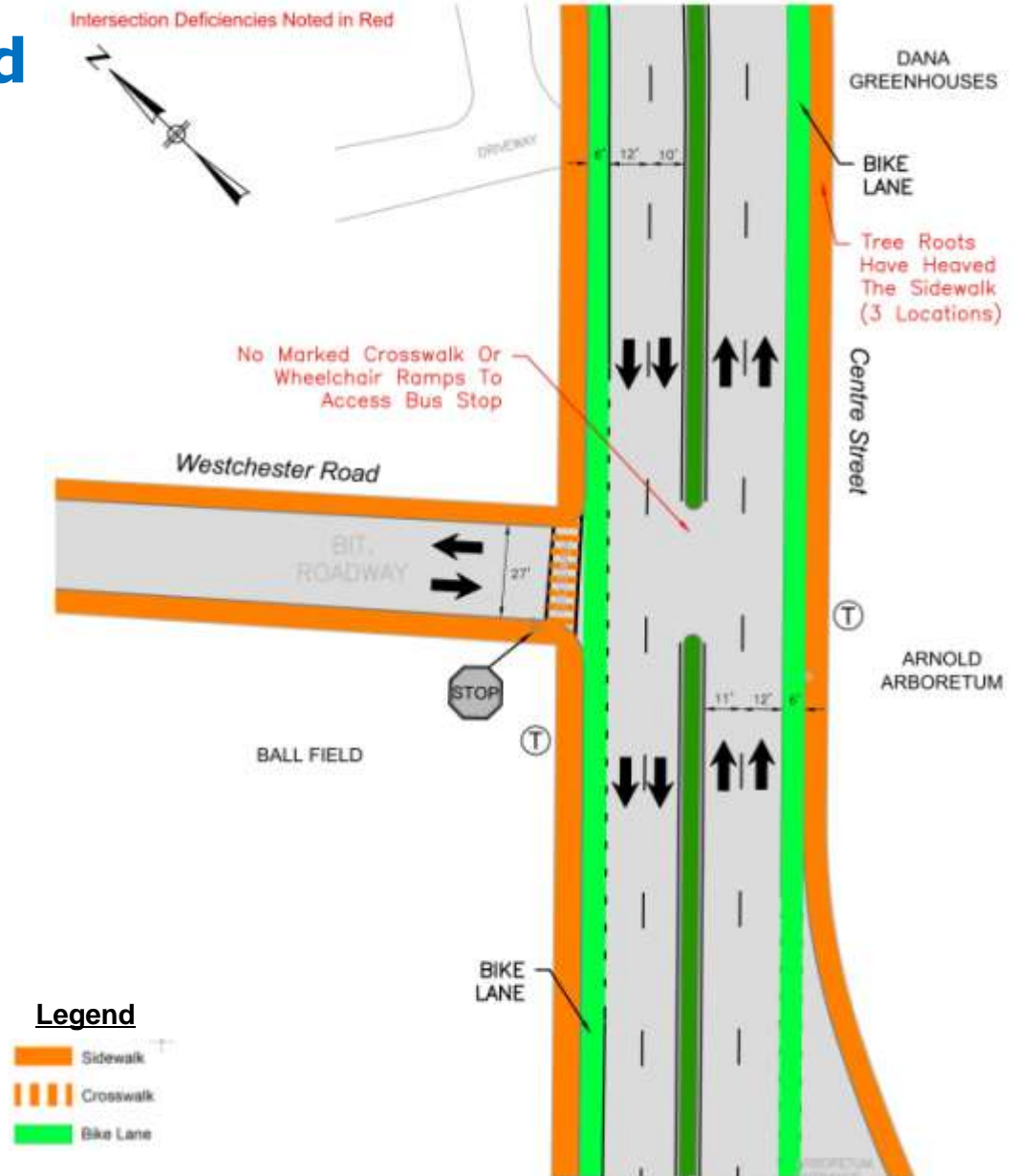
Intersection Improvement Concept

- **Whitcomb Avenue**
- Improved Pedestrian Accommodation Across Whitcomb Avenue.



Existing Intersection Deficiencies

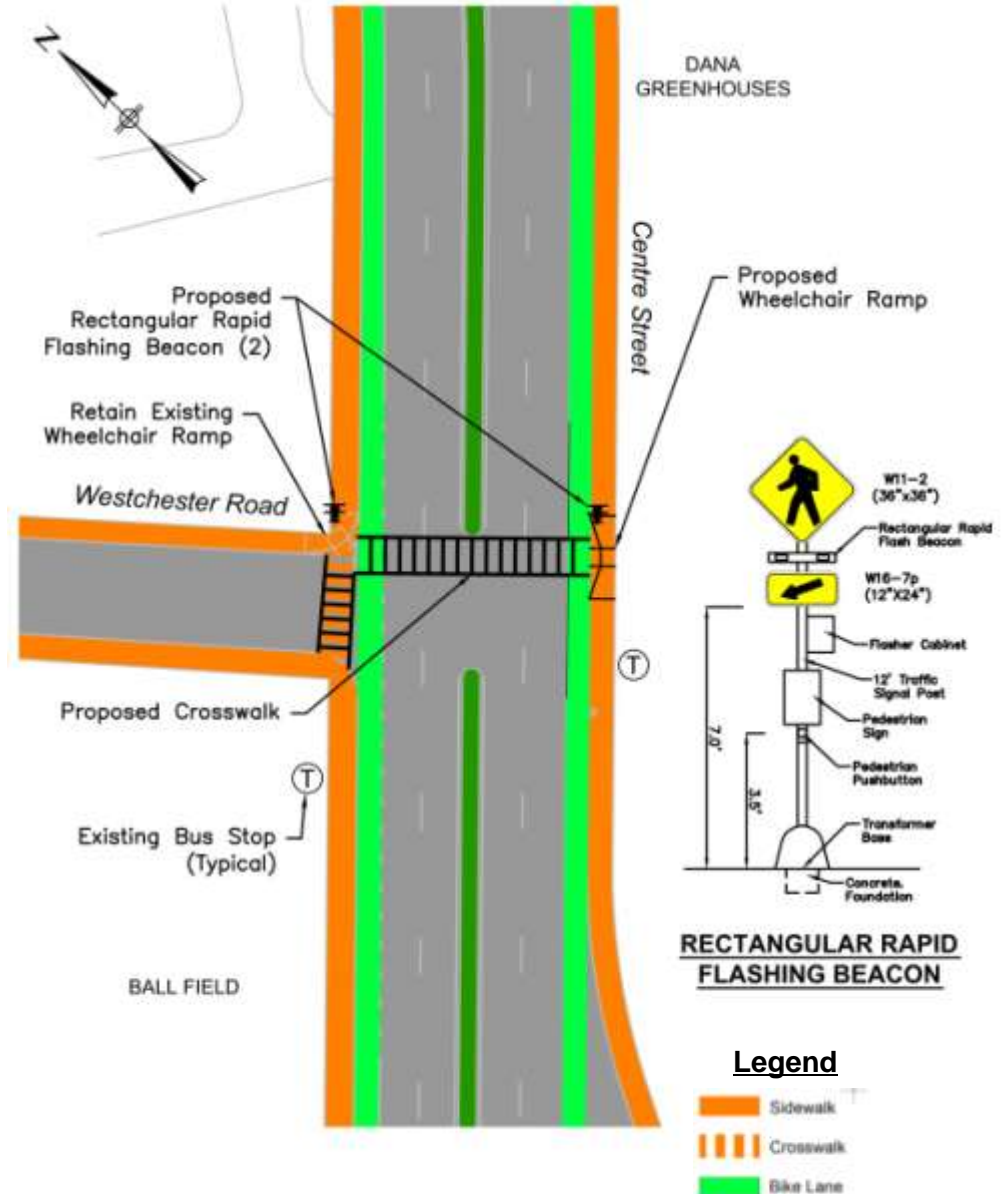
- Westchester Road



Intersection Improvement Concept

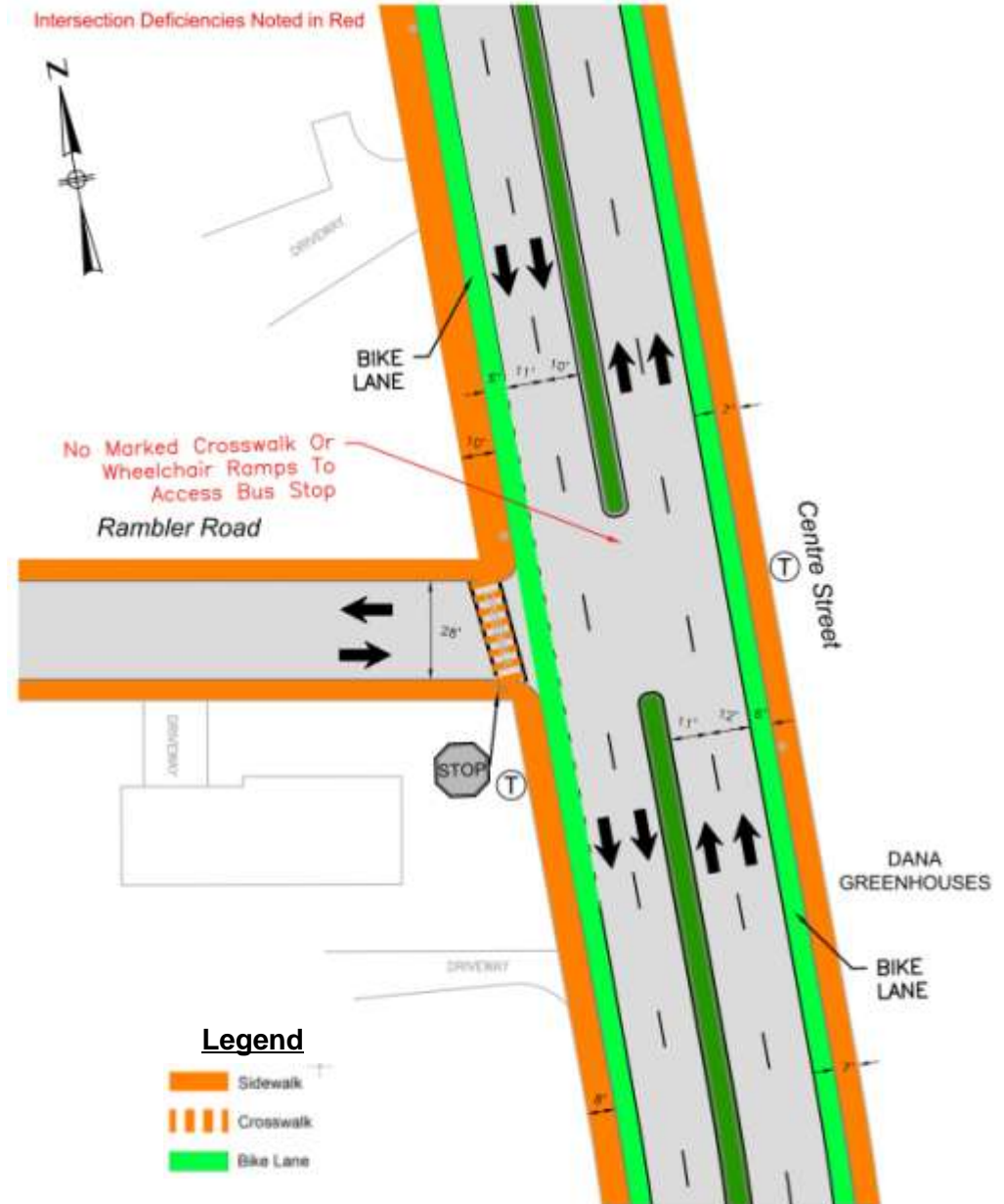
- Westchester Road**

- Improvements Would Provide a Pedestrian Crossing, Which Would Improve Bus Stop Access.
- RRFB Would Improve Pedestrian Safety in the New Crossing.



Existing Intersection Deficiencies

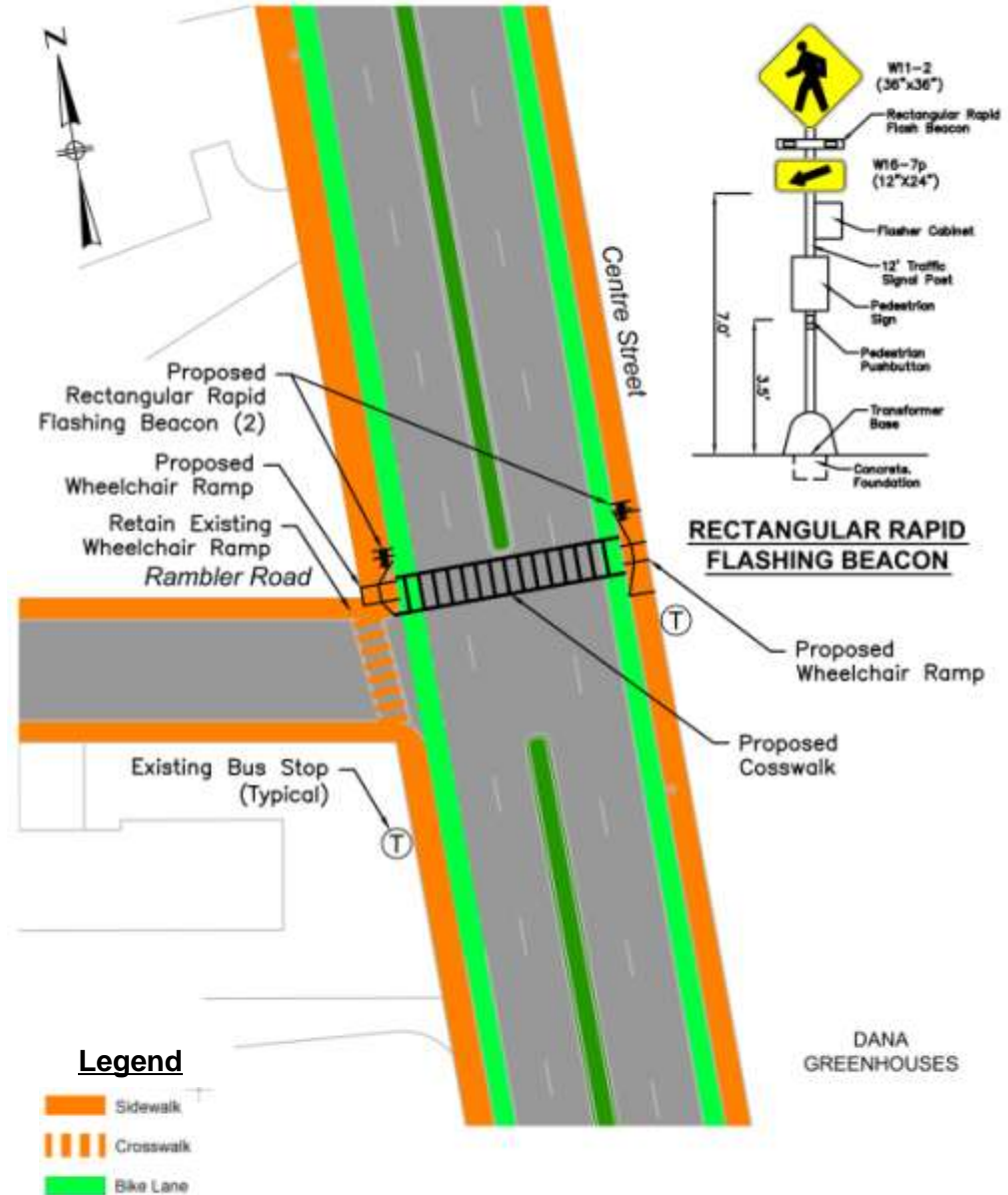
- Rambler Road



Intersection Improvement Concept

• Rambler Road

- Improvements Would Provide a Pedestrian Crossing, Which Would Improve Bus Stop Access.
- RRFB Would Improve Pedestrian Safety in the New Crossing.



Rectangular Rapid Flashing Beacon (RRFB)

Proposed at Westchester Road and Rambler Road



RRFB - **Inactive** State



RRFB - **Active** State



- Use Light Emitting Diode (LED) technology.
- LED and LED Flashing Pattern similar to those used on Emergency Vehicles

Rectangular Rapid Flashing Beacon (RRFB)

Proposed at Westchester Road and Rambler Road

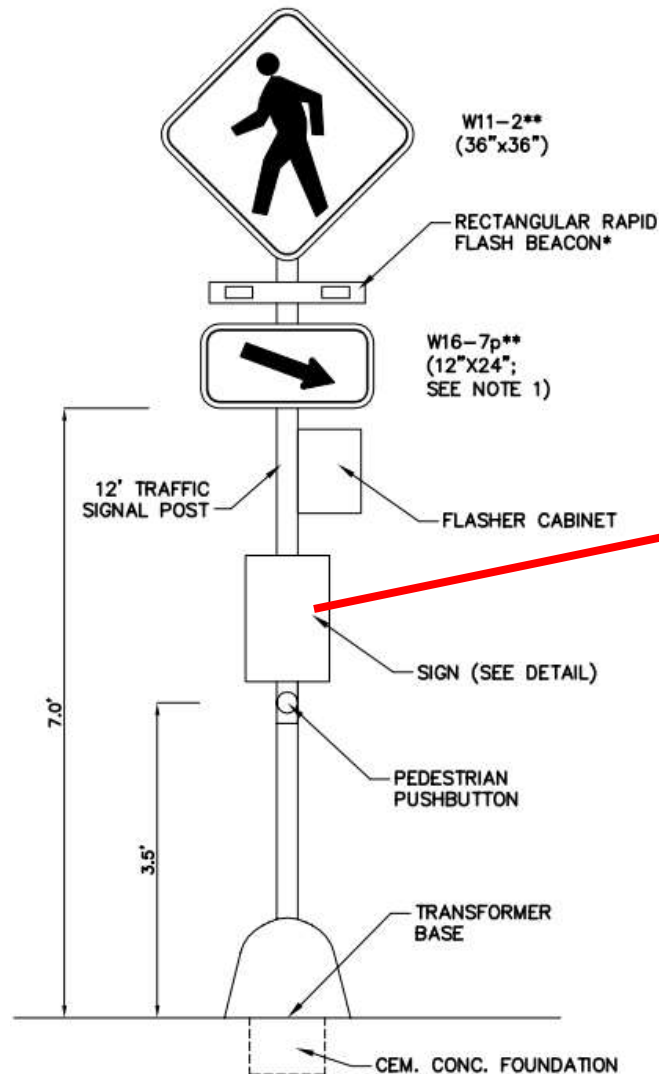
Operation



Rectangular Rapid Flashing Beacon (RRFB)

Proposed at Westchester Road and Rambler Road

Details

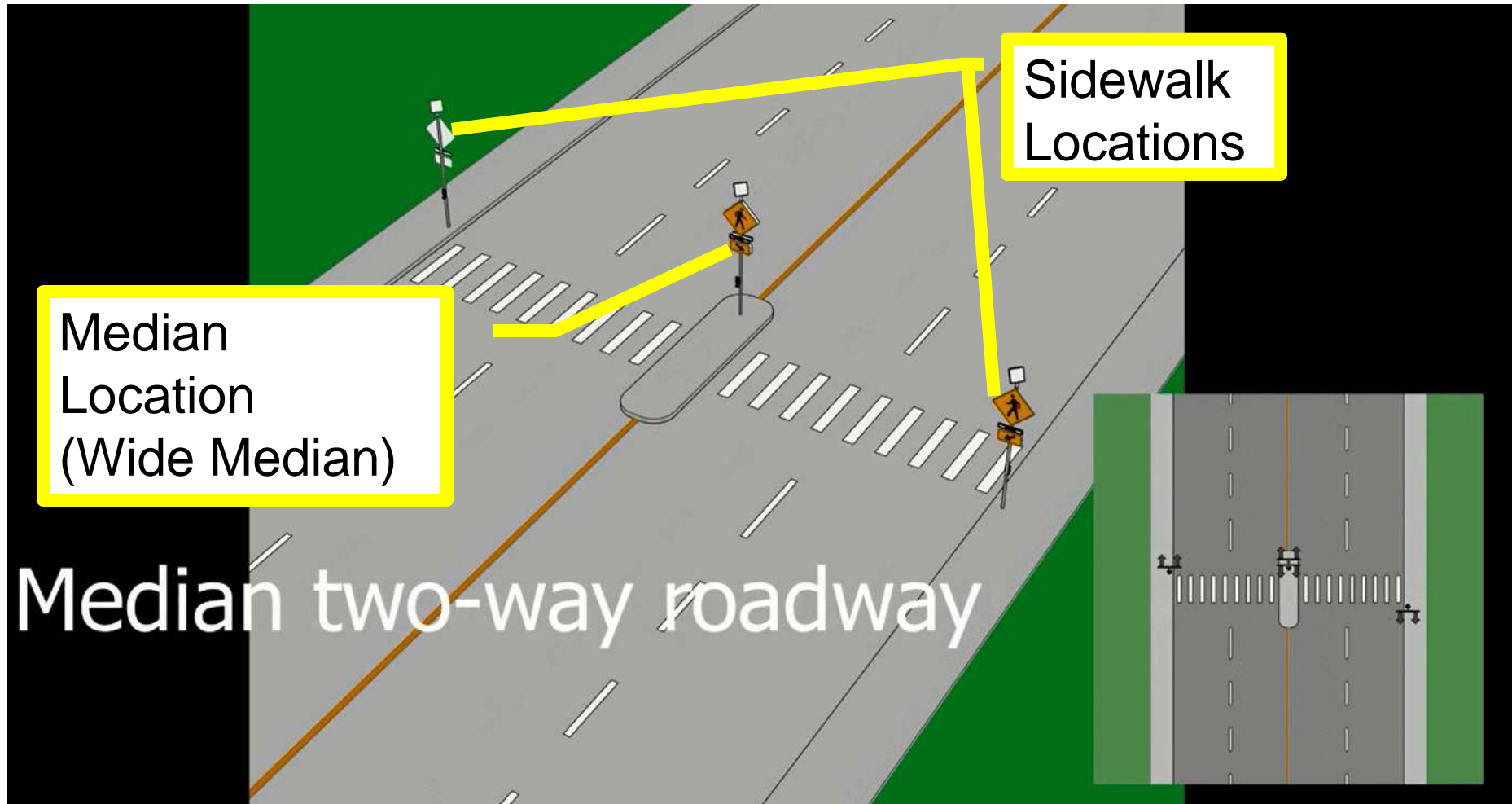


Push Button.
Wait For
Vehicles To
STOP
Before
Crossing

Rectangular Rapid Flashing Beacon (RRFB)

Proposed at Westchester Road and Rambler Road

Location



Rectangular Rapid Flashing Beacon (RRFB)

Proposed at Westchester Road and Rambler Road

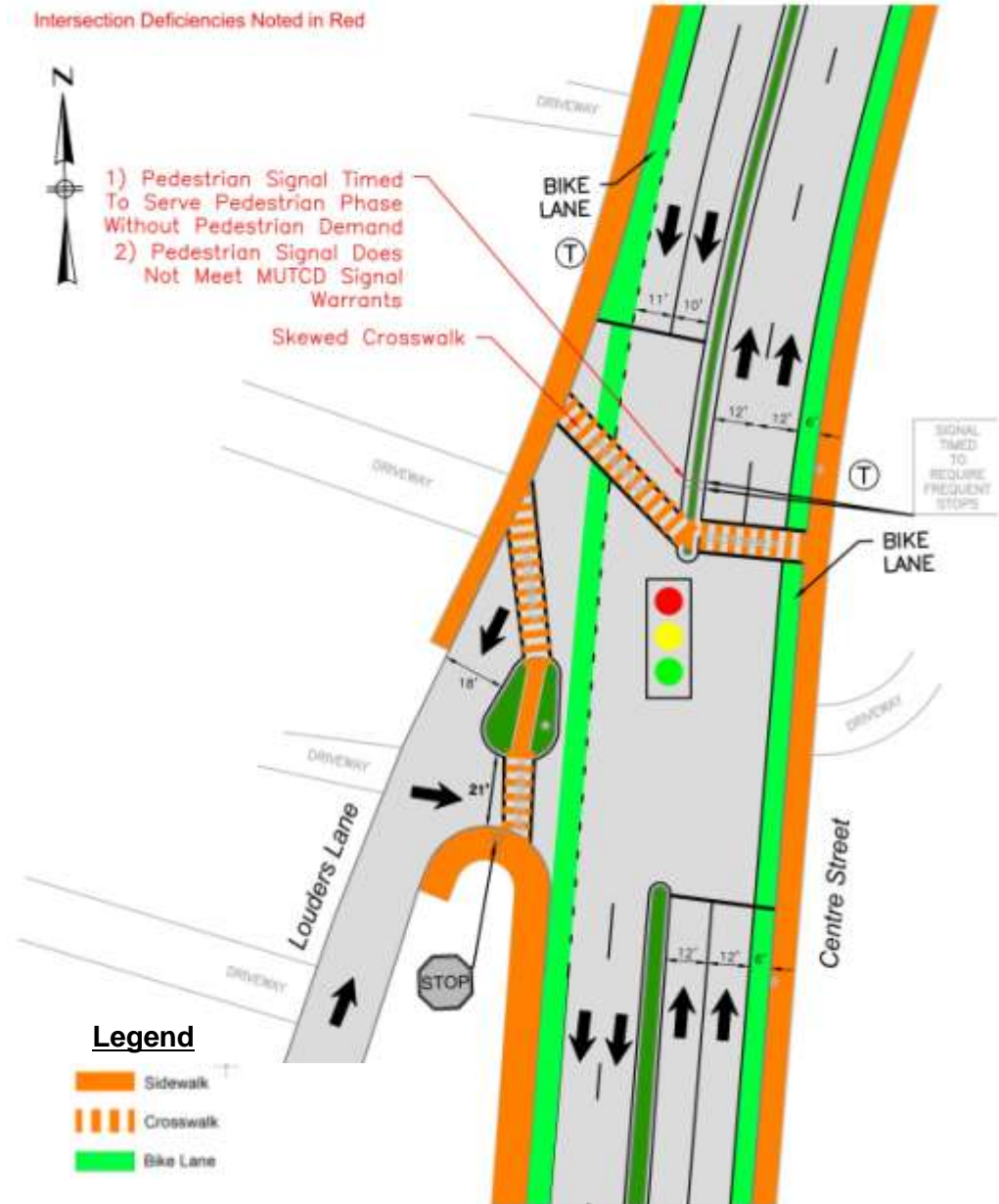
Features & Advantages

- Driver yielding rates of 80% with RRFB vs. Approximately 20% without.
- Wireless, synchronized LEDs across roadway
- Easy Installation, Low Maintenance
- Web-based monitoring/alert option
- LED indicators for pedestrians
- More effective than round flashing beacons

Existing Intersection Deficiencies

- **Louders Lane**

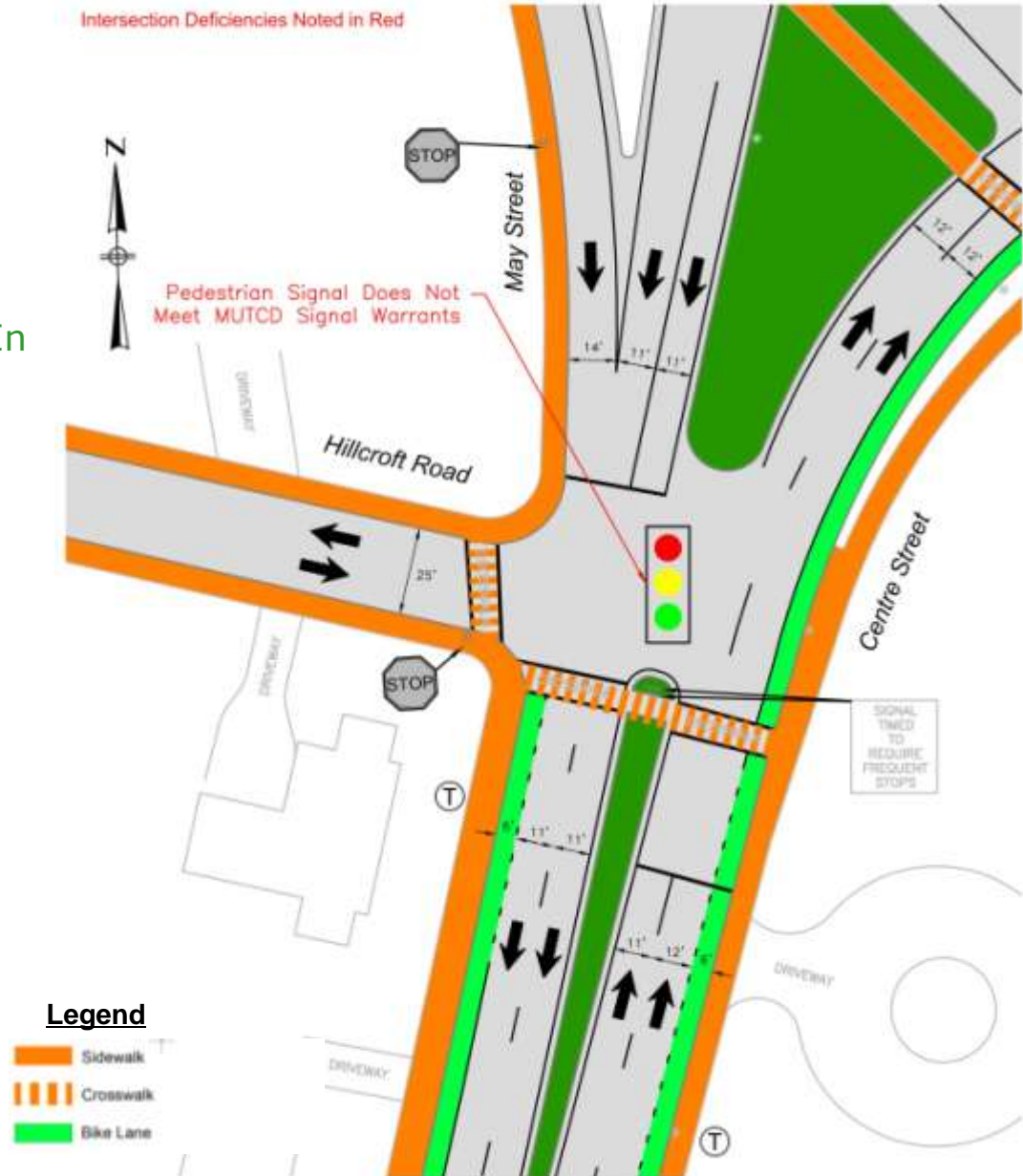
- Traffic signal installed around 1957
- No improvements proposed.
- With no modifications, traffic signal may remain in service.



Existing Intersection Deficiencies

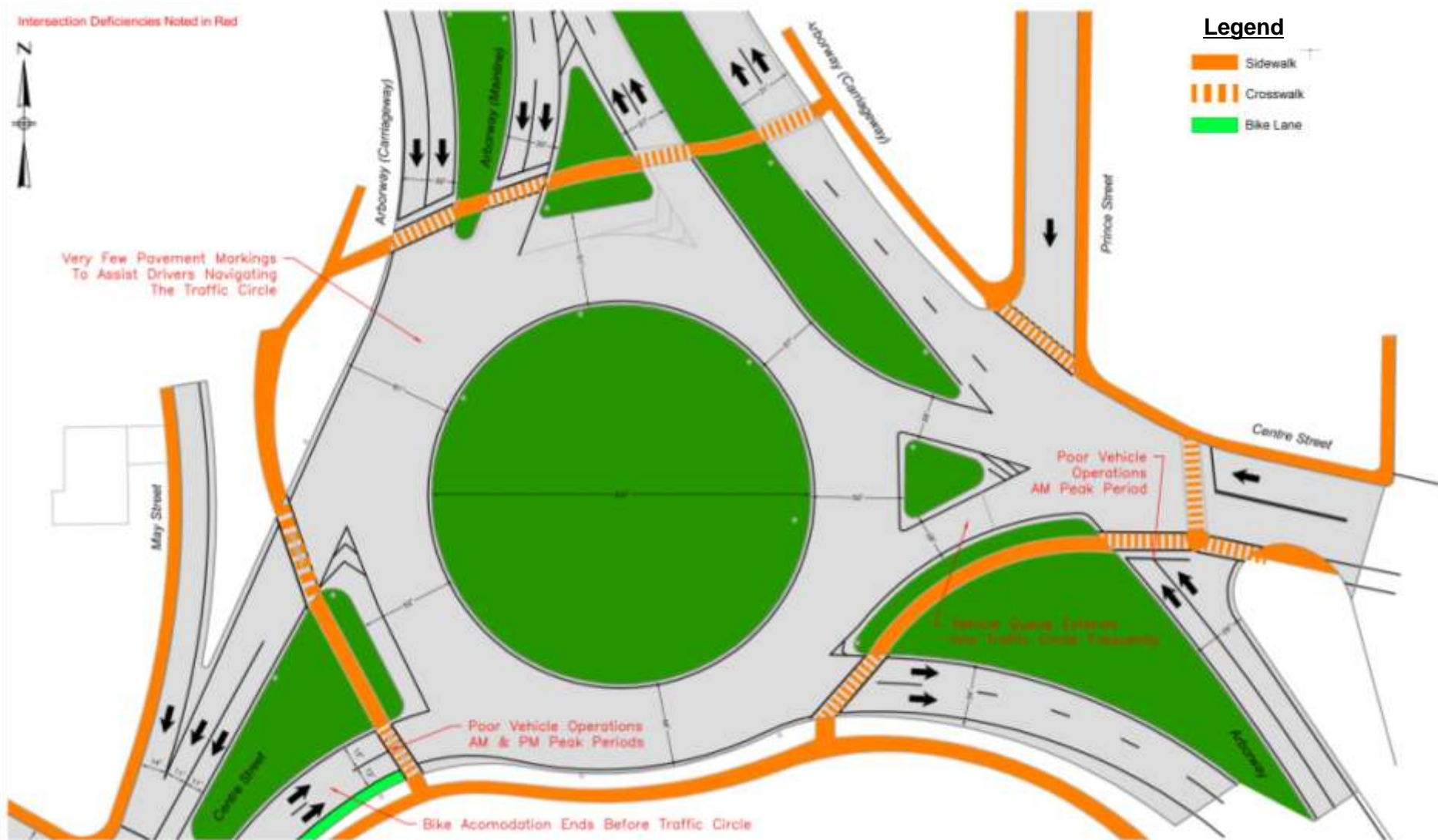
- **Hillcroft Road**

- Traffic signal installed around 1949.
- No Improvements Proposed.
- With no Traffic Signal May Remain In Service.



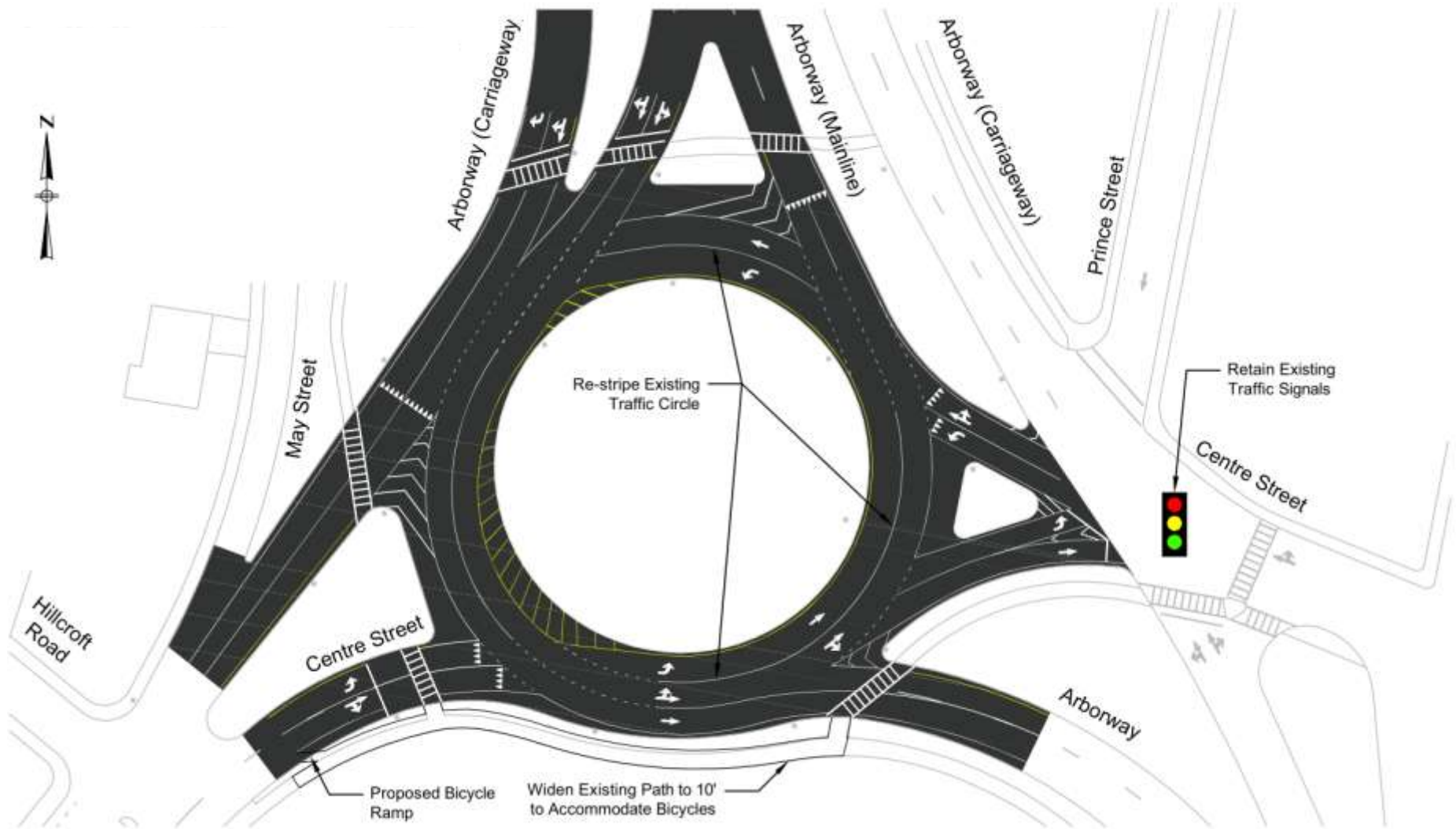
Existing Intersection Deficiencies

- Murray Circle



Intersection Improvement Concept

- Murray Circle (Short Term)**



Intersection Improvement Concept

- Murray Circle (Long Term – Traffic Signals)**



Summary

Short-Term Improvements (1-2 Years)

Funding for these improvements has not been identified.

- **VFW Parkway**

- Modify existing pedestrian signal timing (Estimated Cost: \$5,000, Disruption: Low)
- Convert existing west sidewalk into shared-use path to accommodate southbound bicycle traffic. (Estimated cost: \$100,000, Disruption: Medium)

- **Allandale Street**

- Install crosswalk across Centre Street, including wheelchair ramps (Estimated Cost: \$25,000, Disruption: Medium)
- Install pedestrian signal equipment at existing traffic signal (Estimated Cost: \$20,000, Disruption: Low)
- Incorporate signal operations at mid-block pedestrian crossing into Allandale Street traffic signal (Estimated Cost: \$40,000, Disruption: Medium)

Summary-*continued*

Short-Term Improvements (1-2 Years)

Funding for these improvements has not been identified.

- **Whitcomb Avenue**

- New crosswalk and wheelchair ramps across Whitcomb Avenue (Estimated Cost: \$50,000, Disruption: Medium)

- **Westchester Road**

- New crosswalk, wheelchair ramps and RRFBs across Centre Street (Estimated Cost: \$60,000, Disruption: Medium)

- **Rambler Road**

- New crosswalk, wheelchair ramps and RRFBs across Centre Street (Estimated Cost: \$60,000, Disruption: Medium)

- **Murray Circle**

- Additional Pavement Markings (Estimated Cost: \$20,000, Disruption: Low)

Summary

Long-Term Improvements (3+ Years)

Funding for these improvements has not been identified.

- **VFW Parkway**
 - Replace existing traffic signal equipment when it reaches the end of its useful life (Estimated Cost \$200,000, Disruption: Medium)
- **Walter Street intersection improvements**
 - Installation of new traffic signals, roadway and sidewalk work (Estimated Cost: \$1.5 million, Disruption: High)
- **Allendale Street**
 - Replace existing traffic signal equipment when it reaches the end of its useful life (Estimated Cost \$200,000, Disruption: Medium)
 - Roadway widening is infeasible due to environmental and right-of-way constraints

Summary-*continued*

Long-Term Improvements (3+ Years)

Funding for these improvements has not been identified.

- **Murray Circle**

- Also being looked at as part of Arborway Project.
- Traffic Signal analyzed as an Alternative. (Estimated Cost: unknown, Disruption: High)
- Determination of a recommended alternative should wait until traffic patterns settle after the completion of the Casey Overpass Project.

Next Steps

- Public submits comments
 - Deadline: Wednesday October 28, 2015
- DCR/Consultant review comments.
- Short-term improvements could be designed and implemented.
- Long-term improvements should be reevaluated once traffic patterns have settled following the completion of the Casey Overpass Project.



Additional Information

For more information:

<http://www.mass.gov/eea/agencies/dcr/public-outreach/public-meetings/>

If you have comments:

Submit Online: <http://www.mass.gov/eea/agencies/dcr/public-outreach/submit-public-comments/>

Write: Department of Conservation and Recreation
Office of Public Outreach
251 Causeway Street, Suite 600
Boston, MA 02114

Deadline: Wednesday, October 28, 2015

Note: Public comments submitted to DCR may be posted on the DCR website in their entirety.

If you have other questions or concerns, or wish to subscribe to a DCR general information or project-specific listserv: contact DCR's Office of Community Relations at 617-626-4973 or Mass.Parks@state.ma.us.